



# COMMONWEALTH of VIRGINIA

OFFICE OF THE  
REGIONAL DIRECTOR

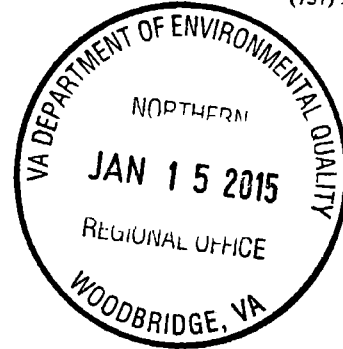
## Department of Corrections

Division of Operations  
Eastern Region

January 12, 2015

1001 OBICI INDUSTRIAL BLVD.  
SUITE F  
SUFFOLK, VA 23434  
(757) 925-2212

Mr. Douglas Frasier  
VPDES Permit Writer, Senior II  
Department of Environmental Quality  
Northern Regional Office  
13901 Crown Court  
Woodbridge, Virginia 22193



Re: VPDES Permit No. VA0023329  
Reissuance Application  
Caroline Correctional Unit # 2

Dear Mr. Frasier:

You will find attached the completed forms that make up the Reissuance Application for the WWTP at Caroline Correctional Unit # 2. This is the electronic copy you requested. The original will be placed in the mail to you this week. I did not see where any additional copies were requested. If they are required and needed, please let me know.

If you find any part of the application incomplete or additional information is needed, please let me know and I will make the correction. I can be contacted by phone at 757-514-3592 or email at [Dallas.Phillips@vadoc.virginia.gov](mailto:Dallas.Phillips@vadoc.virginia.gov).

Sincerely,

Dallas L. Phillips  
Environmental Services Manager

/dlp

Enclosures: NPDES Form 2A  
VPDES Sewage Sludge Permit Application Form  
VPDES Permit Application Addendum  
Public Notice Billing Information Form  
Attachments

An Equal Opportunity Employer

PUBLIC NOTICE BILLING INFORMATION

I hereby authorize the Virginia Department of Environmental Quality to have the cost of publishing a public notice billed to the Agent/Department shown below. The public notice will be published once a week for two consecutive weeks in accordance with 9VAC25-31-290.C.2.

Agent/Department to be billed: Dallas L. Phillips

Owner: Virginia Department of Corrections

Applicant's Address: Eastern Regional Office

1001 Obici Industrial Boulevard, Suite F

Suffolk, Virginia 23434

Agent's Telephone Number: 757- 514-3592

Authorizing Agent:

  
Signature

VPDES Permit No. VA0023329  
DOC – Caroline Correctional Unit 2

Please return to:

Douglas Frasier  
VA-DEQ, NRO  
13901 Crown Court  
Woodbridge, VA 22193-1453  
Fax: 703-583-3821

**VPDES PERMIT APPLICATION ADDENDUM (FOR VPDES PERMIT NO. VA0023329)**

1. **Entity to whom the permit is to be issued:** VADOC/Environmental Services Unit /Caroline Correctional Unit # 2  
Who will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be the facility or property owner.

2. **Is this facility located within city or town boundaries?** Yes No x

3. **Please provide the tax map parcel number for the land where the discharge is located:** N/A

4. **What is the design average flow of this facility in million gallons per day (MGD)?** 0.037 MGD

5. **In addition to the design flow, should the permit be written with limits for any other discharge flow tiers?**  
Yes No x

If yes, please identify the other flow tiers in MGD: \_\_\_\_\_

Please consider such issues as if you plan to expand operations during the next five years or if your facility's design flow is considerably greater than your current flow?

6. **Nature of operations generating wastewater:** Housing For Incarcerated Offenders and Basic Work Site

Facilities For State Employees and Visitors

100 % of flow from domestic connections/sources

       % of flow from non-domestic connections/sources

7. **Mode of discharge:** x Continuous        Intermittent        Seasonal

Describe frequency and duration of intermittent and seasonal discharges: \_\_\_\_\_

8. **Identify the characteristics of the receiving stream at the point just above the facility's discharge point(s):**

Stream Characteristic	Outfall Number						
	001						
Never dry, permanent stream	x						
Usually flowing, sometimes dry, intermittent stream							
Wet-weather flow, often dry, ephemeral stream							
Usually or always dry, effluent-dependent stream							
Lake or pond at or below discharge point							
Other:							

9. **Approval date(s), if applicable:**

**O & M Manual** October 10, 1989  
November 28, 2007

**Sludge/Solids Management Plan** Revised

Have there been changes in your operation or procedures since the above approval dates? Yes No x

10. Please provide a list of Materials stored at the facility. Please complete the table below or attach another page if more room is necessary.

Material Storage		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Polymer For Emergency Use	10 Gallons at Most	Kept in Locked Storage Room
Chlorine Tablets For Disinfection	Five 45 Pound Pales	Kept in Locked Storage Room
De-Chlorination Tablets	Six 45 Pound Pales	Kept in Locked Storage Room
Household Bleach For Potable Water	60 Gallon Containers at Most	Kept in Locked Storage Room

11. Please provide the name and email addresses for personnel who will be involved with the reissuance of the VPDES permit:

Name	Title	E-mail Address
Dallas L. Phillips	Environmental Services Manager	Dallas.Phillips@vadoc.virginia.gov
Timothy G. Newton	Environmental Services Director	Timothy.Newton@vadoc.virginia.gov
Lydell LeSane	Treatment Plant Operator	Lydell.Lesane@vadoc.virginia.gov



ESU / Caroline Correctional Unit # 2

FORM  
**2A**  
NPDES**NPDES FORM 2A APPLICATION OVERVIEW****APPLICATION OVERVIEW**

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

**BASIC APPLICATION INFORMATION:**

- A. Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.
- B. Additional Application Information for Applicants with a Design Flow  $\geq$  0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.
- C. Certification.** All applicants must complete Part C (Certification).

**SUPPLEMENTAL APPLICATION INFORMATION:**

- D. Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):
  - 1. Has a design flow rate greater than or equal to 1 mgd,
  - 2. Is required to have a pretreatment program (or has one in place), or
  - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):
  - 1. Has a design flow rate greater than or equal to 1 mgd,
  - 2. Is required to have a pretreatment program (or has one in place), or
  - 3. Is otherwise required by the permitting authority to submit results of toxicity testing.
- F. Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:
  - 1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
  - 2. Any other industrial user that
    - a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
    - b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
    - c. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

**ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)**

ESU / Caroline Correctional Unit # 2

**BASIC APPLICATION INFORMATION****PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:**

All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.

**A.1. Facility Information.**

Facility name Environmental Services Unit (ESU) / Caroline Correctional Unit # 2

Mailing Address 31285 Camp Road  
Hanover, Virginia 23069

Contact person Dallas L. Phillips & Lydell LeSane

Title Environmental Services Manager Treatment Plant Operator

Telephone number 757-514-3592 or 757-334-3282 (Cell) 804-994-2161 or 804-840-2012 (Cell)

Facility Address 31285 Camp Road, Route 677  
(not P.O. Box) Hanover, Virginia 23069

**A.2. Applicant Information.** If the applicant is different from the above, provide the following:

Applicant name Virginia Department of Corrections

Mailing Address 1001 Obici Industrial Blvd., Suite F & 6900 Atmore Drive  
Suffolk, Virginia 23434 Richmond, Virginia 23225

Contact person Dallas L. Phillips & Timothy G. Newton

Title Environmental Services Manager Environmental Services Director

Telephone number 757-514-3592 or 757-334-3286 (Cell) 804-887-8069 or 804-839-0337 (Cell)

Is the applicant the owner or operator (or both) of the treatment works?

☒ owner ☒ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

☒ facility ☒ applicant**A.3. Existing Environmental Permits.** Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES VA0023329 PSD \_\_\_\_\_

UIC \_\_\_\_\_ Other \_\_\_\_\_

RCRA \_\_\_\_\_ Other \_\_\_\_\_

**A.4. Collection System Information.** Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Name	Population Served	Type of Collection System	Ownership
<u>Caroline Correctional Unit # 2</u>	<u>138 Offenders</u>	<u>Separate</u>	<u>DOC, State Government</u>
_____	<u>53 Staff</u>	_____	_____
_____	_____	_____	_____
Total population served <u>191</u>			

ESU / Caroline Correctional Unit # 2 VA0023329

## A.5. Indian Country.

- a. Is the treatment works located in Indian Country?

☐ Yes ☒ No

- b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

☐ Yes ☒ No

## A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

- a. Design flow rate
- 0.037
- mgd

	<u>Two Years Ago</u>	<u>Last Year</u>	<u>This Year</u>	
b. Annual average daily flow rate	<u>0.016</u>	<u>0.017</u>	<u>0.017</u>	mgd
c. Maximum daily flow rate	<u>0.030</u>	<u>0.027</u>	<u>0.055</u>	mgd

## A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

☒ Separate sanitary sewer 100 %

☐ Combined storm and sanitary sewer \_\_\_\_\_ %

## A.8. Discharges and Other Disposal Methods.

- a. Does the treatment works discharge effluent to waters of the U.S.?
- ☒
- Yes
- ☐
- No

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent	<u>100%</u>
ii. Discharges of untreated or partially treated effluent	<u>N/A</u>
iii. Combined sewer overflow points	<u>N/A</u>
iv. Constructed emergency overflows (prior to the headworks)	<u>N/A</u>
v. Other _____	<u>N/A</u>

- b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.?
- ☐
- Yes
- ☒
- No

If yes, provide the following for each surface impoundment:

Location: \_\_\_\_\_

Annual average daily volume discharged to surface impoundment(s) \_\_\_\_\_ mgd

Is discharge \_\_\_\_\_ continuous or \_\_\_\_\_ intermittent?

- c. Does the treatment works land-apply treated wastewater?
- ☐
- Yes
- ☒
- No

If yes, provide the following for each land application site:

Location: \_\_\_\_\_

Number of acres: \_\_\_\_\_

Annual average daily volume applied to site: \_\_\_\_\_ Mgd

Is land application \_\_\_\_\_ continuous or \_\_\_\_\_ intermittent?

- d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works?
- ☐
- Yes
- ☒
- No

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If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

If transport is by a party other than the applicant, provide:

Transporter name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
\_\_\_\_\_

Contact person: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone number: \_\_\_\_\_

For each treatment works that receives this discharge, provide the following:

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_  
\_\_\_\_\_

Contact person: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone number: \_\_\_\_\_

If known, provide the NPDES permit number of the treatment works that receives this discharge. \_\_\_\_\_

Provide the average daily flow rate from the treatment works into the receiving facility. \_\_\_\_\_

mgd

- e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)?

\_\_\_\_ Yes

\_\_\_\_ ☒ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):  
\_\_\_\_\_

Annual daily volume disposed of by this method: \_\_\_\_\_

Is disposal through this method \_\_\_\_\_

continuous or \_\_\_\_\_

intermittent?

## FACILITY NAME AND PERMIT NUMBER:

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## WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 once for each outfall (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. If you answered "no" to question A.8.a, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

## A.9. Description of Outfall.

- a. Outfall number 001
- b. Location N/A 23069  
(City or town, if applicable) (Zip Code)  
Caroline Virginia  
(County) (State)  
37 Degrees 50 Minutes 6.7668 Seconds -77 Degrees 18 Minutes 41.9582 Seconds  
(Latitude) (Longitude)
- c. Distance from shore (if applicable) N/A ft.
- d. Depth below surface (if applicable) N/A ft.
- e. Average daily flow rate 0.017 mgd
- f. Does this outfall have either an intermittent or a periodic discharge? Yes ☒ No (go to A.9.g.)
- If yes, provide the following information:
- Number of times per year discharge occurs: N/A
- Average duration of each discharge: N/A
- Average flow per discharge: N/A mgd
- Months in which discharge occurs: N/A
- g. Is outfall equipped with a diffuser? Yes No No

## A.10. Description of Receiving Waters.

- a. Name of receiving water Herring Creek, UT
- b. Name of watershed (if known) Unknown  
United States Soil Conservation Service 14-digit watershed code (if known): Unknown
- c. Name of State Management/River Basin (if known): York River  
United States Geological Survey 8-digit hydrologic cataloging unit code (if known): Unknown
- d. Critical low flow of receiving stream (if applicable):  
acute N/A cfs chronic N/A cfs
- e. Total hardness of receiving stream at critical low flow (if applicable): N/A mg/l of CaCO<sub>3</sub>

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## A.11. Description of Treatment.

- a. What levels of treatment are provided? Check all that apply.

☐ Primary☒ Secondary☐ Advanced☐ Other. Describe:

Oxidation Ditch WWTP

- b. Indicate the following removal rates (as applicable):

Design BOD<sub>5</sub> removal or Design CBOD<sub>5</sub> removal

85 - 94 %

Design SS removal

85 - 94 %

Design P removal

Unknown %

Design N removal

Unknown %

Other

N/A %

- c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Chlorine Tablets

If disinfection is by chlorination, is dechlorination used for this outfall?

☒ Yes☐ No

- d. Does the treatment plant have post aeration?

☒ Yes☐ No

**A.12. Effluent Testing Information.** All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.3	S.U.	7.1	S.U.	1126
pH (Maximum)	8.8	S.U.	8.0	S.U.	1126
Flow Rate	0.065	mgd	0.017	mgd	1126
Temperature (Winter)	15.3 Degrees	Centigrade	9.6 Degrees	Centigrade	271
Temperature (Summer)	29.8 Degrees	Centigrade	24.0 Degrees	Centigrade	276

\* For pH please report a minimum and a maximum daily value

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		

## CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.

BIOCHEMICAL OXYGEN DEMAND (Report one)	BOD-5	23.6	mg/l	8.2	mg/l	39	SM5210-B-2011	5 mg/l
	CBOD-5	N/A						
FECAL COLIFORM <i>E. COLI</i>	E. COLI	40.5	N/CML	E. COLI	1.0	N/CML	159	HACH10029 M-Co6 Blue24
TOTAL SUSPENDED SOLIDS (TSS)		50.0	mg/l	7.0	mg/l	44	SM2540-D-2011	1 mg/l

END OF PART A.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

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## BASIC APPLICATION INFORMATION

### PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate  $\geq 0.1$  mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

**B.1. Inflow and Infiltration.** Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

.001 Estimated gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

A project was completed in October 2014 in which the main sewer lines and manholes at the Unit were replaced with new sewer lines and manholes. This was a big step in eliminating inflow and infiltration.

**B.2. Topographic Map.** Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

- The area surrounding the treatment plant, including all unit processes. *see Attachments*
- The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- Each well where wastewater from the treatment plant is injected underground.
- Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
- If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

**B.3. Process Flow Diagram or Schematic.** Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g. chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

**B.4. Operation/Maintenance Performed by Contractor(s).**

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ☐ Yes ☒ No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Responsibilities of Contractor: \_\_\_\_\_

**B.5. Scheduled Improvements and Schedules of Implementation.** Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

- a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

001

- b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

☐ Yes ☒ No

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- c If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).

Plans are underway to upgrade the Oxidation Ditch WWTP to a Sequencing Batch Reactor (SBR) WWTP. No change in flow is necessary.

- d. Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM / DD / YYYY	Actual Completion MM / DD / YYYY
- Begin construction	02 / 31 / 2018	___ / ___ / ___
- End construction	01 / 31 / 2017	___ / ___ / ___
- Begin discharge	___ / ___ / ___	___ / ___ / ___
- Attain operational level	___ / ___ / ___	___ / ___ / ___

- e. Have appropriate permits/clearances concerning other Federal/State requirements been obtained? \_\_\_ Yes
- ☒
- No

Describe briefly: Design funds have been approved. All other aspects of WWTP upgrade are  
pending or in the process of obtaining approvals.**B.6. EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY).**

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: N/A

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.							
AMMONIA (as N)							
CHLORINE (TOTAL RESIDUAL, TRC)							
DISSOLVED OXYGEN							
TOTAL KJELDAHL NITROGEN (TKN)							
NITRATE PLUS NITRITE NITROGEN							
OIL and GREASE							
PHOSPHORUS (Total)							
TOTAL DISSOLVED SOLIDS (TDS)							
OTHER							

**END OF PART B.****REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE**



**FACILITY NAME AND PERMIT NUMBER:**Form Approved 1/14/99  
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**BASIC APPLICATION INFORMATION****PART C. CERTIFICATION**

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

**Indicate which parts of Form 2A you have completed and are submitting:**☒ Basic Application Information packet

Supplemental Application Information packet:

☐ Part D (Expanded Effluent Testing Data)☐ Part E (Toxicity Testing: Biomonitoring Data)☐ Part F (Industrial User Discharges and RCRA/CERCLA Wastes)☐ Part G (Combined Sewer Systems)**ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title Timothy G. Newton, Environmental Services Director

Signature

Telephone number

804-887-8069

Date signed

1/8/15

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

**SEND COMPLETED FORMS TO:**

FACILITY NAME AND PERMIT NUMBER:

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ESU / Caroline Correctional Unit # 2 VA0023329

**SUPPLEMENTAL APPLICATION INFORMATION****PART D. EXPANDED EFFLUENT TESTING DATA**

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

**Effluent Testing: 1.0 mgd and Pretreatment Treatment Works.** If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall number: N/A (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
<b>METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.</b>											
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM											
COPPER											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (AS CaCO <sub>3</sub> )											
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer.											

FACILITY NAME AND PERMIT NUMBER:

ESU / Caroline Correctional Unit # 2 VA0023329

Form Approved 1/14/99  
OMB Number 2040-0086**SUPPLEMENTAL APPLICATION INFORMATION****PART E. TOXICITY TESTING DATA**

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

**E.1. Required Tests.**

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

\_\_\_\_\_ chronic \_\_\_\_\_ acute

**E.2. Individual Test Data.** Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

Test number: \_\_\_\_\_ Test number: \_\_\_\_\_ Test number: \_\_\_\_\_

**a. Test information.**

Test species & test method number	N/A		
Age at initiation of test			
Outfall number			
Dates sample collected			
Date test started			
Duration			

**b. Give toxicity test methods followed.**

Manual title			
Edition number and year of publication			
Page number(s)			

**c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.**

24-Hour composite			
Grab			

**d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)**

Before disinfection			
After disinfection			
After dechlorination			

FACILITY NAME AND PERMIT NUMBER:

ESU / Caroline Correctional Unit # 2 VA0023329

Form Approved 1/14/99  
OMB Number 2040-0086

## SUPPLEMENTAL APPLICATION INFORMATION

### PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.

#### GENERAL INFORMATION:

**F.1. Pretreatment Program.** Does the treatment works have, or is it subject to, an approved pretreatment program?

\_\_\_\_ Yes \_\_\_\_ No

**F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs).** Provide the number of each of the following types of industrial users that discharge to the treatment works.

a. Number of non-categorical SIUs.

N/A

b. Number of CIUs.

#### SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

**F.3. Significant Industrial User Information.** Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name:

Mailing Address:

**F.4. Industrial Processes.** Describe all of the industrial processes that affect or contribute to the SIU's discharge.

**F.5. Principal Product(s) and Raw Material(s).** Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s):

Raw material(s):

**F.6. Flow Rate.**

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

\_\_\_\_\_ gpd (\_\_\_\_ continuous or \_\_\_\_ intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

\_\_\_\_\_ gpd (\_\_\_\_ continuous or \_\_\_\_ intermittent)

**F.7. Pretreatment Standards.** Indicate whether the SIU is subject to the following:

a. Local limits \_\_\_\_ Yes \_\_\_\_ No

b. Categorical pretreatment standards \_\_\_\_ Yes \_\_\_\_ No

If subject to categorical pretreatment standards, which category and subcategory?

FACILITY NAME AND PERMIT NUMBER:

Form Approved 1/14/99  
OMB Number 2040-0086

ESU / Caroline Correctional Unit # 2 VA0023329

## SUPPLEMENTAL APPLICATION INFORMATION

### PART G. COMBINED SEWER SYSTEMS

If the treatment works has a combined sewer system, complete Part G.

**G.1. System Map.** Provide a map indicating the following: (may be included with Basic Application Information)

- All CSO discharge points.
- Sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding natural resource waters).
- Waters that support threatened and endangered species potentially affected by CSOs.

**G.2. System Diagram.** Provide a diagram, either in the map provided in G.1. or on a separate drawing, of the combined sewer collection system that includes the following information:

- Locations of major sewer trunk lines, both combined and separate sanitary.
- Locations of points where separate sanitary sewers feed into the combined sewer system.
- Locations of in-line and off-line storage structures.
- Locations of flow-regulating devices.
- Locations of pump stations.

### CSO OUTFALLS:

Complete questions G.3 through G.6 once for each CSO discharge point.

**G.3. Description of Outfall.**

- Outfall number N/A
- Location  
(City or town, if applicable) \_\_\_\_\_ (Zip Code) \_\_\_\_\_  
(County) \_\_\_\_\_ (State) \_\_\_\_\_  
(Latitude) \_\_\_\_\_ (Longitude) \_\_\_\_\_
- Distance from shore (if applicable) \_\_\_\_\_ ft.
- Depth below surface (if applicable) \_\_\_\_\_ ft.
- Which of the following were monitored during the last year for this CSO?  
\_\_\_\_ Rainfall      \_\_\_\_ CSO pollutant concentrations      \_\_\_\_ CSO frequency  
\_\_\_\_ CSO flow volume      \_\_\_\_ Receiving water quality
- How many storm events were monitored during the last year? \_\_\_\_\_

**G.4. CSO Events.**

- Give the number of CSO events in the last year.  
\_\_\_\_\_ events (\_\_\_\_ actual or \_\_\_\_ approx.)
- Give the average duration per CSO event.  
\_\_\_\_\_ hours (\_\_\_\_ actual or \_\_\_\_ approx.)


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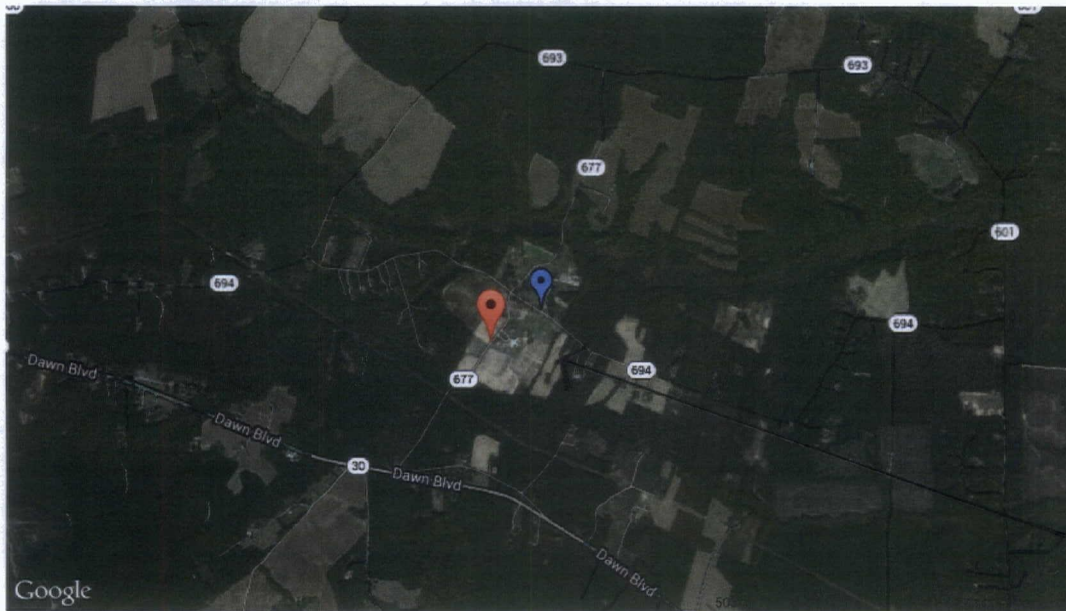
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## Latitude and Longitude of a Point



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Unit #2*

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Latitude: Longitude: 

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Longitude:	<input type="text" value="-77"/>	<input type="text" value="19"/>	<input type="text" value="44.3526"/>

## Show Point from Latitude and Longitude

Use this if you know the latitude and longitude coordinates of a point and want to see where on the map the point is.

Use: **+** for N Lat or E Long **-** for S Lat or W Long.

Example: +40.689060 -74.044636

Note: Your entry should not have any embedded spaces.

Decimal Deg. Latitude: Decimal Deg. Longitude: 

Example: +34 40 50.12 for 34N 40' 50.12"

	Degrees	Minutes	Seconds
Latitude:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Longitude:	<input type="text"/>	<input type="text"/>	<input type="text"/>




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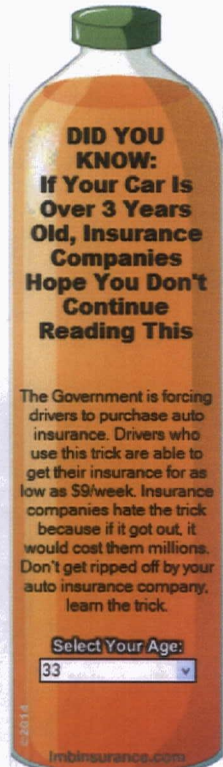
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To find the latitude and longitude of a point Click on the map, Drag the marker, or enter the...

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## Latitude and Longitude of a Point



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## Get the Latitude and Longitude of a Point

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Latitude: Longitude: 

	Degrees	Minutes	Seconds
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Example: +34 40 50.12 for 34N 40' 50.12"

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## Latitude and Longitude of a Point



Caroline  
Correctional  
Unit #2  
WWTP

## Get the Latitude and Longitude of a Point

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Latitude: Longitude: 

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Longitude:	<input type="text" value="-77"/>	<input type="text" value="19"/>	<input type="text" value="45.4722"/>

## Show Point from Latitude and Longitude

Use this if you know the latitude and longitude coordinates of a point and want to see where on the map the point is.

Use: **+** for N Lat or E Long **-** for S Lat or W Long.

Example: +40.689060 -74.044636

Note: Your entry should not have any embedded spaces.

Decimal Deg. Latitude: Decimal Deg. Longitude: 

Example: +34 40 50.12 for 34N 40' 50.12"

	Degrees	Minutes	Seconds
Latitude:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Longitude:	<input type="text"/>	<input type="text"/>	<input type="text"/>




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	Degrees	Minutes	Seconds
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## Show Point from Latitude and Longitude

Use this if you know the latitude and longitude coordinates of a point and want to see where on the map the point is.

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	Degrees	Minutes	Seconds
Latitude:	<input type="text"/>	<input type="text"/>	<input type="text"/>
Longitude:	<input type="text"/>	<input type="text"/>	<input type="text"/>

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Digester



Lab/Office



24 Hour Holding Tank





Digester

Oxidation Ditch



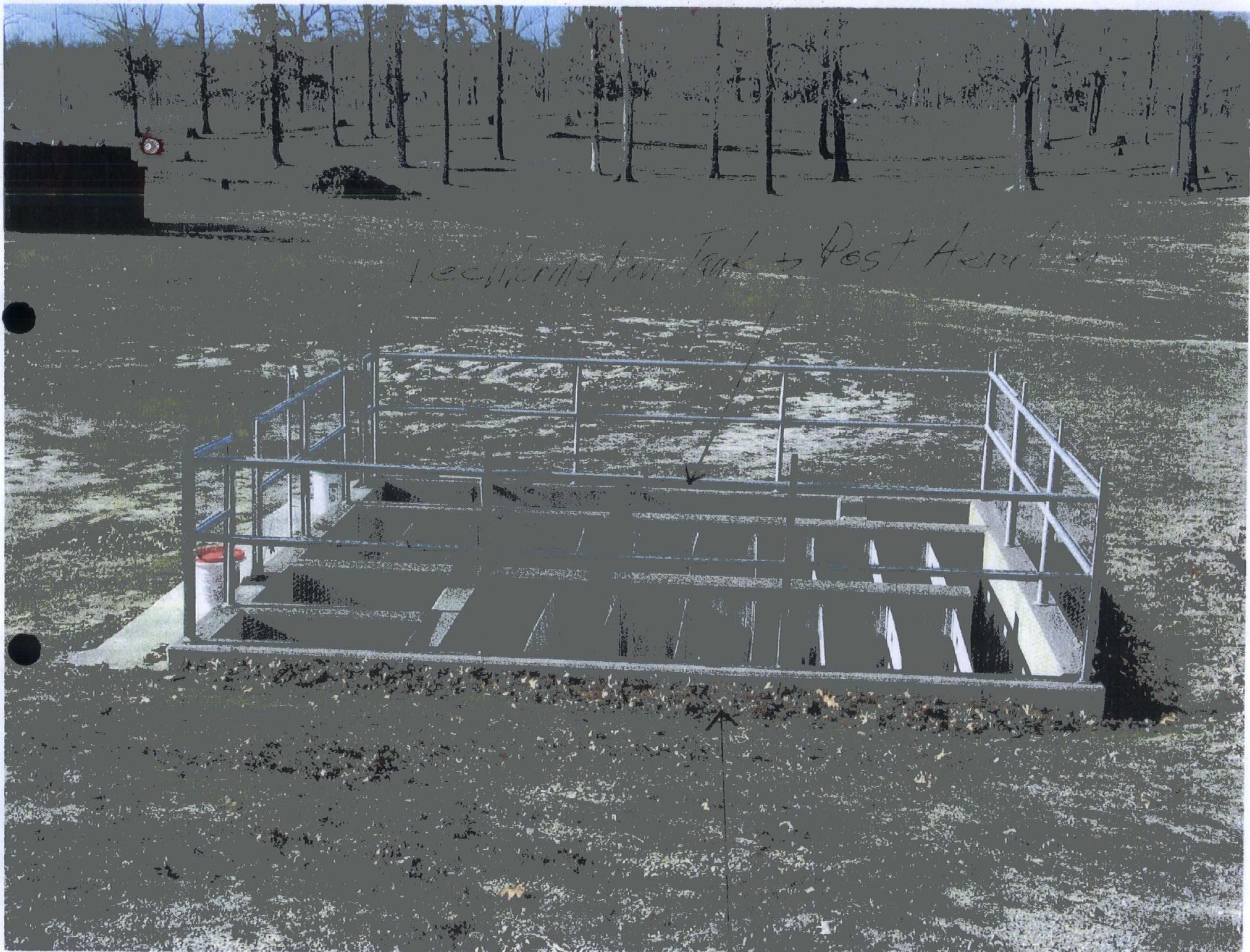


Digester



Sludge Drying Beds





Rectification Tank + Post Aeration

Chlorine Contact Tank



Effluent  
Discharge

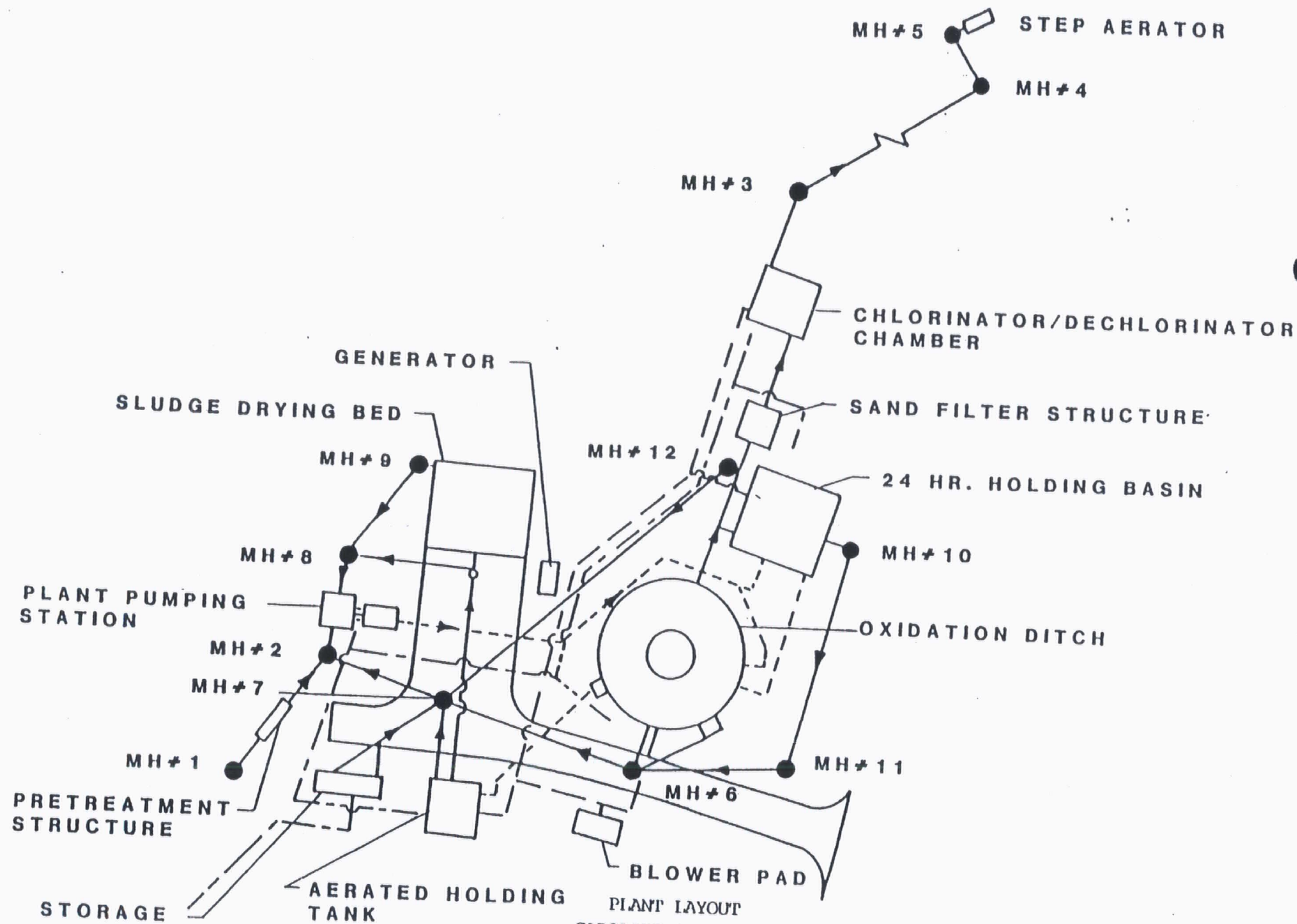




Effluent  
Discharge







PLANT LAYOUT  
CAROLINE C.U. # 2  
FIGURE 1-1



provided only to introduce the reader to the processes in the plant and the basic flow pattern through the plant. A more complete description of the theory and operation of each process is given in Chapter 3.

#### 1.3.1 Activated Sludge Process - Oxidation Ditch

The activated sludge process is a biological process in which wastewater is exposed to a heterogeneous mixture of microorganisms (activated sludge) that is capable of removing organic and some inorganic material from the wastewater. Removal is accomplished by adsorption, oxidation and/or synthesis to new cellular material. A sedimentation process is then used to separate the cellular mass from the wastewater. A more complete discussion of the activated sludge process is given in Chapter 3.

An activated sludge aeration basin, known as an oxidation ditch, is provided as shown in Figure 1-1 and is designed to operate in the extended aeration mode. Aeration is provided by disks mounted on a rotating shaft. These disks provide the oxygen needed by the microorganisms to oxidize organic material in the wastewater and also provide the mixing necessary to provide contact between the microorganisms and the wastewater.

Effluent from the aeration basin flows to the final clarifier where separation of solids and liquid occurs. A portion of the separated solids returned to the aeration basin to help in treating the incoming wastewater. These solids are referred to as "Return Activated Sludge (RAS)". The remainder of the separated solids are wasted from the system for disposal. These solids are referred to as "Waste Activated Sludge (WAS)".

#### 1.3.2 Final Clarifier

A final clarifier is provided to separate the activated sludge from the liquid portion of the wastewater and produce a concentrated sludge and clarified effluent. The sludge is returned to the aeration basin by an airlift system. Sludge which is wasted is withdrawn from the clarifier by a solids handling pump. The clarifier effluent flows from the final clarifier to the sand filter structure for tertiary treatment prior to disinfection.

After treatment in the oxidation ditch effluent from the final clarifier passes through the dynasand filter. This filter utilizes a supply of air in conjunction with continuously recycled sand to filter suspended solids from the effluent, leaving the final clarifier. As water enters the unit, the air supply lifts the dirty sand slurry up through the filter tubes to the top of the filter. At the top of the filter two separate weir discharges are located. The inner weir retains sand that has been flushed during the air lift process but discharges sediment laden water. Sand is returned to the filter through the discharge of filtered effluent after it has moved upward through the filter media. Treated effluent leaves the filter past the filtrate weir and through the filtrate nozzle to the chlorination/dechlorination structure for final treatment.

#### 1.3.4 Chlorination/Dechlorination Contact Chamber

Disinfection of wastewater is necessary in order to destroy pathogenic (disease-causing) organisms in wastewater prior to discharge. Disinfection is accomplished by introducing chlorine, a strong disinfecting agent, to the wastewater. A contact chamber is provided to allow sufficient time for the chlorine to destroy the organisms.

Effluent from the clarifier is transported to the chlorine contact chamber in an 8-inch line by gravity flow. Chlorine is added to the wastewater via the effluent contact with chlorine tablets in a distribution bay and the time of contact provided in the chamber permits the chlorine to react with and destroy the pathogenic organisms in the wastewater. The chlorinated effluent moves through the chamber in a serpentine motion, past the windows of the removable baffles in a path that consists of a 40:1 length-to-width ratio. At the end of the serpentine run, the effluent moves through a tablet dechlorinator to remove both free and combined chlorine ions from the discharge effluents.

#### 1.3.5 Sludge Treatment Facilities

The waste activated sludge (WAS) removed from the final clarifier is a residue of the wastewater treatment process. This material represents the remains of the pollutants that were originally present in the wastewater and it must be safely disposed. The overall objectives of sludge treatment are to



stabilize the organic material in sludge and to reduce the volume of the sludge prior to disposal.

Sludge treatment facilities consist of an aerated holding tank and sand drying beds. The purpose of the aerated tank is to oxidize the organic fraction of the sludge to produce a biologically stable end-product. The digested sludge is discharged to the sand drying beds for dewatering prior to ultimate disposal. Operation of the aerated holding tank and sand drying beds must be integrated in a manner that will optimize the performance of each part of the system.

#### 1.3.6 Discharge Location

The stabilized treated sewage effluent will exit Manhole No. 4 and flow, downstream, to Manhole No. 5. Manhole No.5 has been installed in the existing plant discharge between the existing weir box and existing step aeration. Final aeration is achieved along the existing step aerator.

#### 1.3.7 24-Hour Holding Tank

An emergency holding tank has been provided which may be used for a wide variety of reasons. The tank is sized to receive unit waste for a duration of one day prior to reaching its full capacity. The tank can have flow diverted into it if the operator determines plant discharge is outside of the permitted limits. Corrective measures may be taken while plant discharge is diverted to the tank. The tank may also be used as a bypass structure if cleaning or maintenance of any component is required.

#### 1.3.8 Plant Design Criteria

The design criteria for the treatment plant are as follows based on an average daily flow of 37,000 GPD.

<u>Oxidation Ditch</u>	Inner Channel	Outer Channel
Detention time	10.5 Hours	15.8 Hours
Volume	16,200 Gallons	24,300 Gallons
Organic loading	15.0 lb BOD/1000 CF	
Aeration per disc	2.1 lb O <sub>2</sub> /hr @ 8" Submersion & 50 RPM	
Maximum aeration rate	5.7 lb O <sub>2</sub> /hr	

Depth	5'-0"	5'-0"
Area	654 FT <sup>2</sup>	429 FT <sup>2</sup>

#### Clarifier

Diameter	17'-4"
Surface area	294 SF
Surface Settling Rate	350 gpd/SF
Weir loading rate	683 gpd/ft @ 37,000 gpd

#### Aerated Holding Tank

Sludge Production	648 gpd to be wasted
Volume of Aerated Holding Tank	19446 Gallons
Detention Time	30 days
Air requirement	53 SCFM/1000 CF

#### Sludge Drying Beds

Number	2
Loading design	2SF/Capita
Total surface area	960 SF

#### Chlorination/Dechlorination Contact Basin

Volume	1713 Gallons
Detention time	27 min @ peak flow 67 min @ avg flow

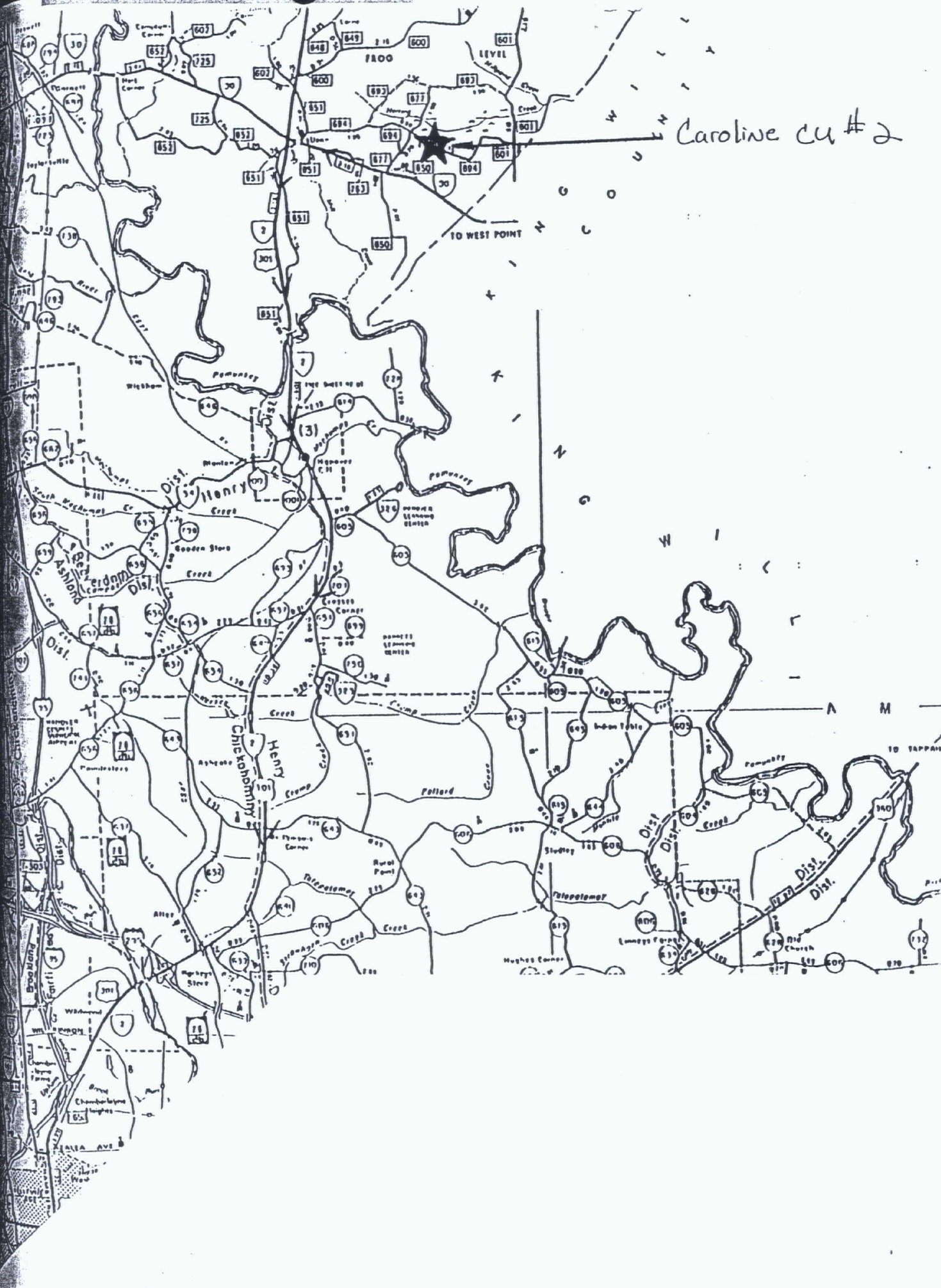
#### Post Aeration

Influent D.O.	0.0 MG/L
Effluent D.O.	5.0 MG/L
Flow	37,000 GPD

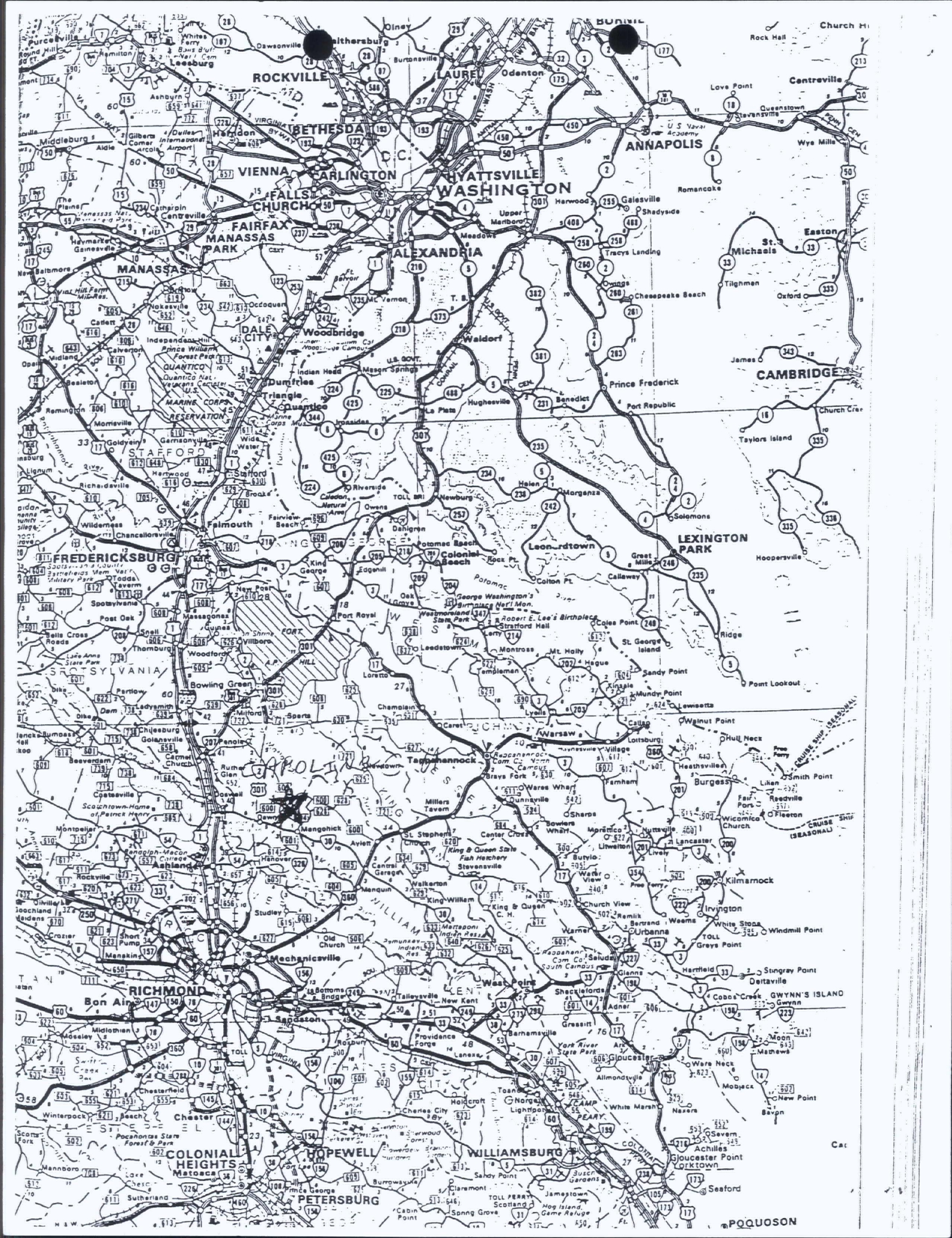
### 1.4 REGULATORY AGENCIES

The regulatory agencies that have direct responsibility for the wastewater treatment plant at the Correctional Facility are:











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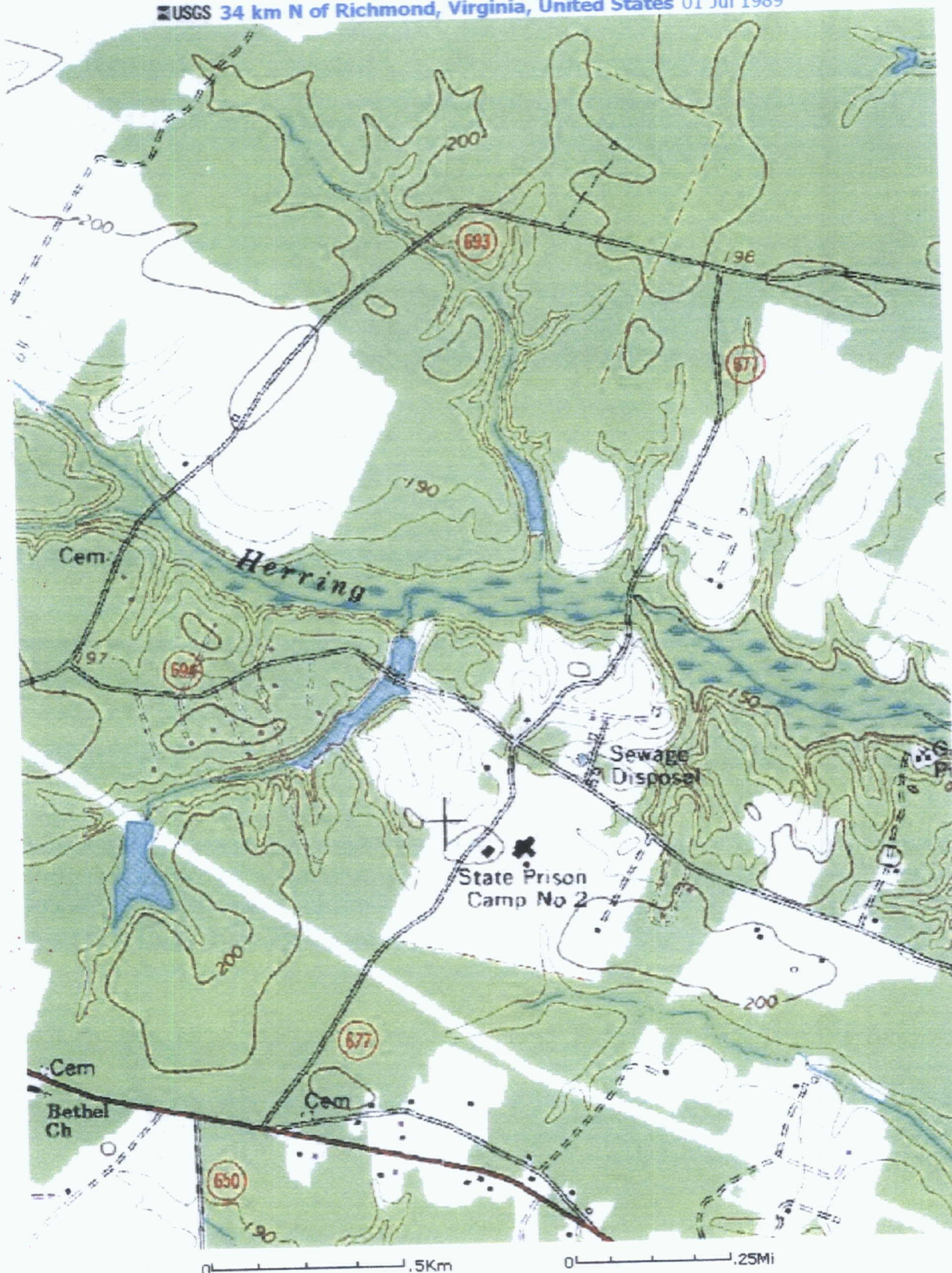


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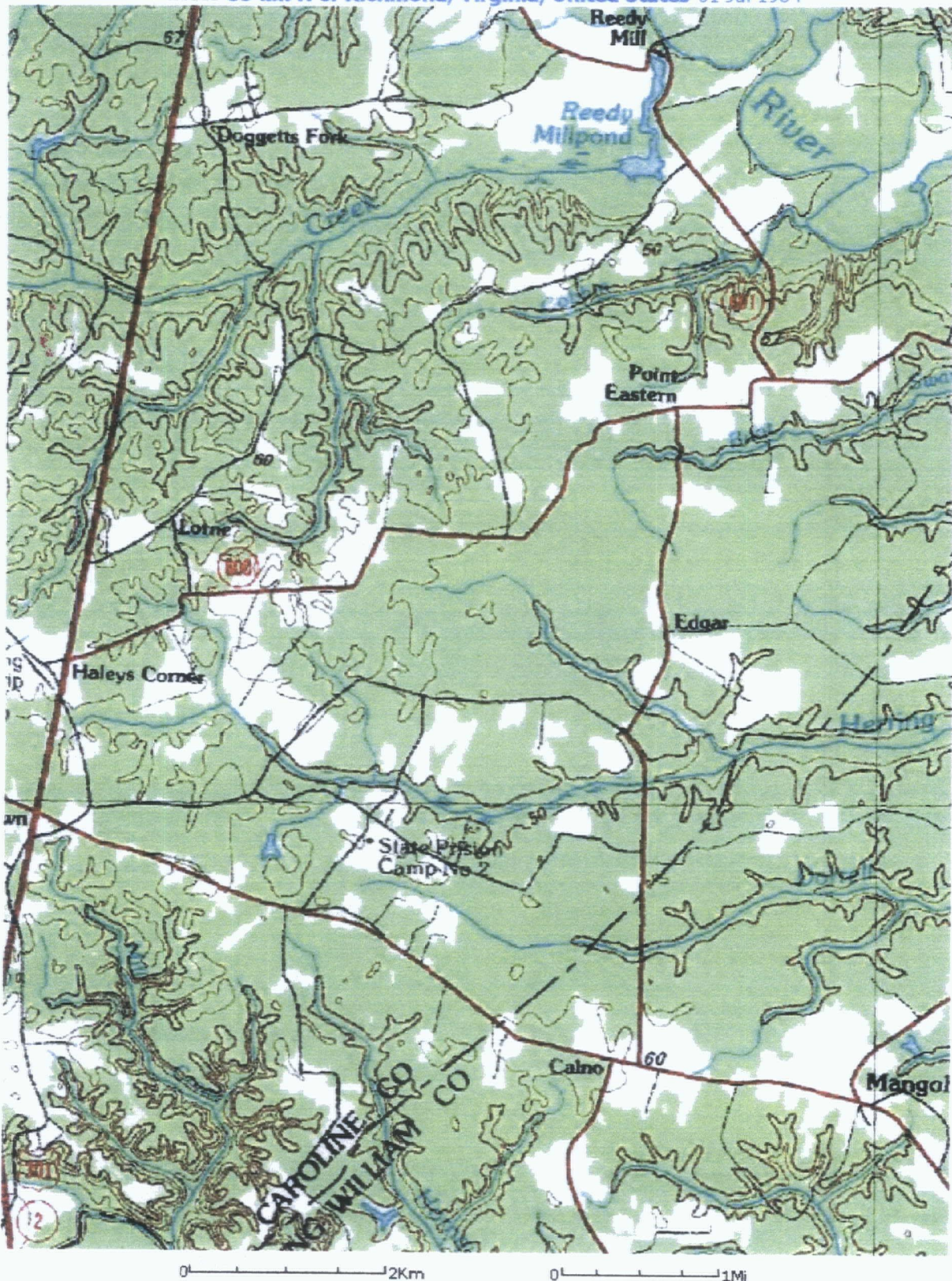


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Attachment

F R O G

Herrang

Discharge Point  
Sewage Treatment Plant

Dorrie

Lorne

Cem

Cem  
Bethel Ch

State Prison  
Camp No

Sewage Disposal

200

200

200

190

200

190

200

200

188

198

877

190

150

200

194

200

200

x 202

648

600

694

694

677

650

683

38

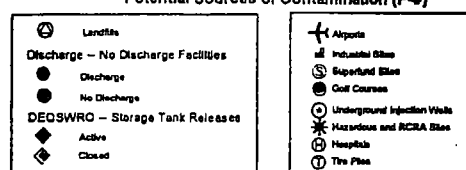
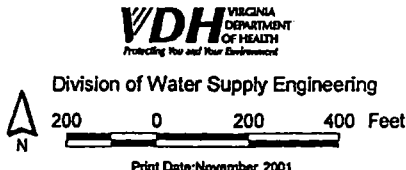
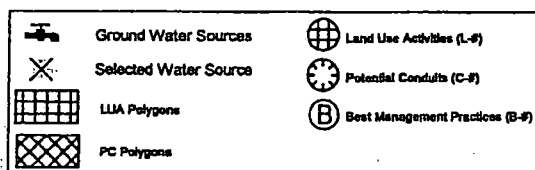
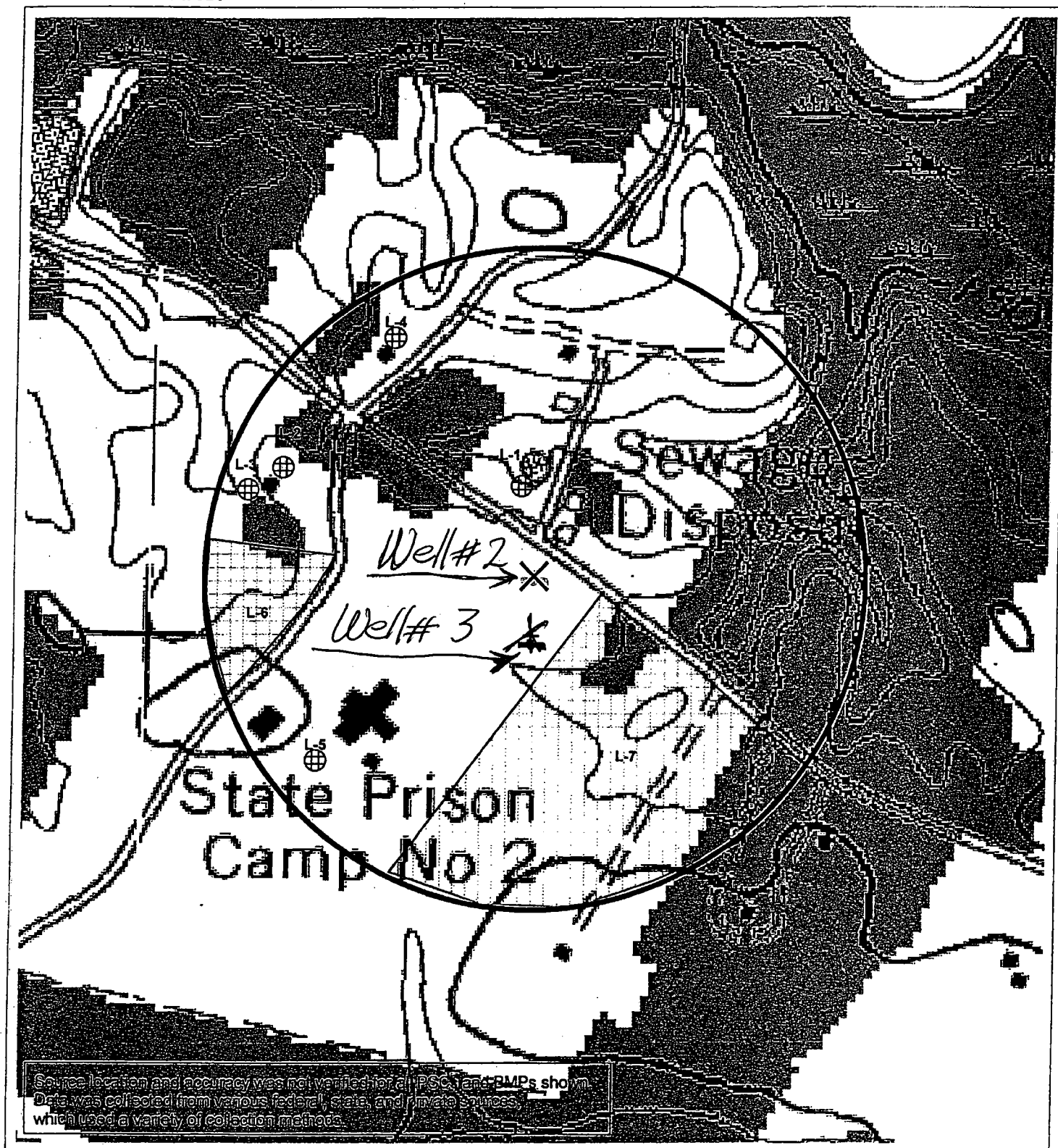


PWSID: 6033150  
FACILITY: WELL 2

# SWAP Zone 1 Map

DISTRICT 16  
COUNTY/CITY: CAROLINE

WATERWORKS: CORRECTIONAL UNIT #2



PWSID:6033150

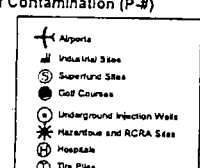
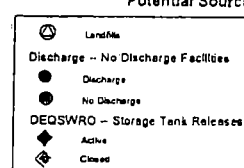
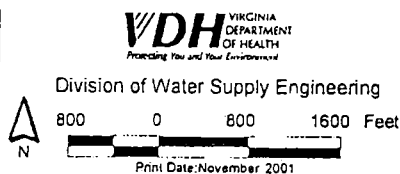
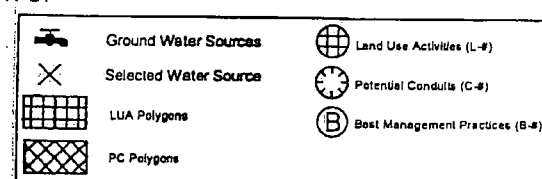
FACILITY:WELL 2

WATERWORKS:CORRECTIONAL UNIT #2

# SWAP Zone 2 Map

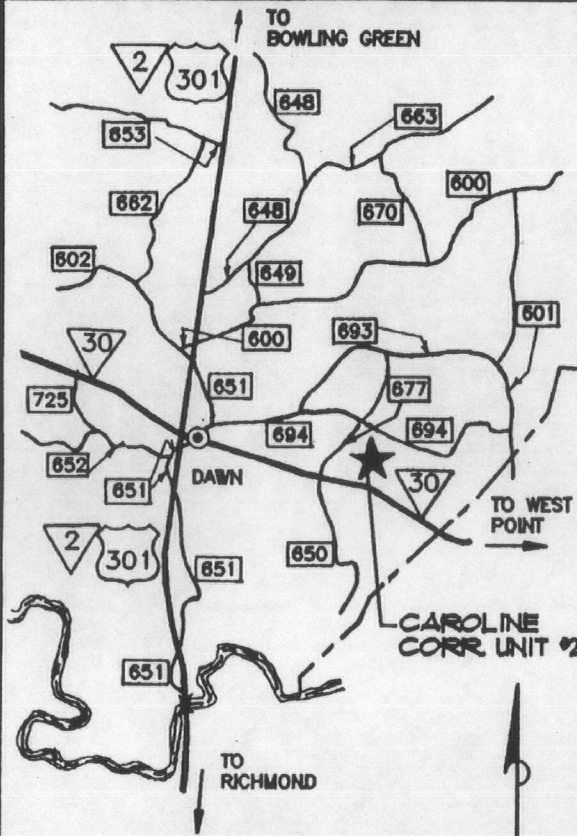
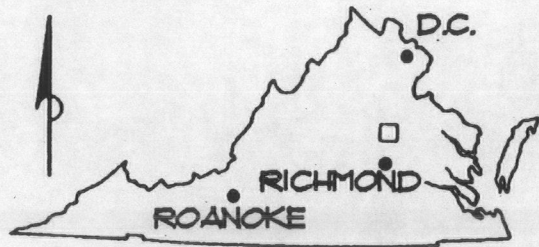
DISTRICT 16

COUNTY/CITY: CAROLINE

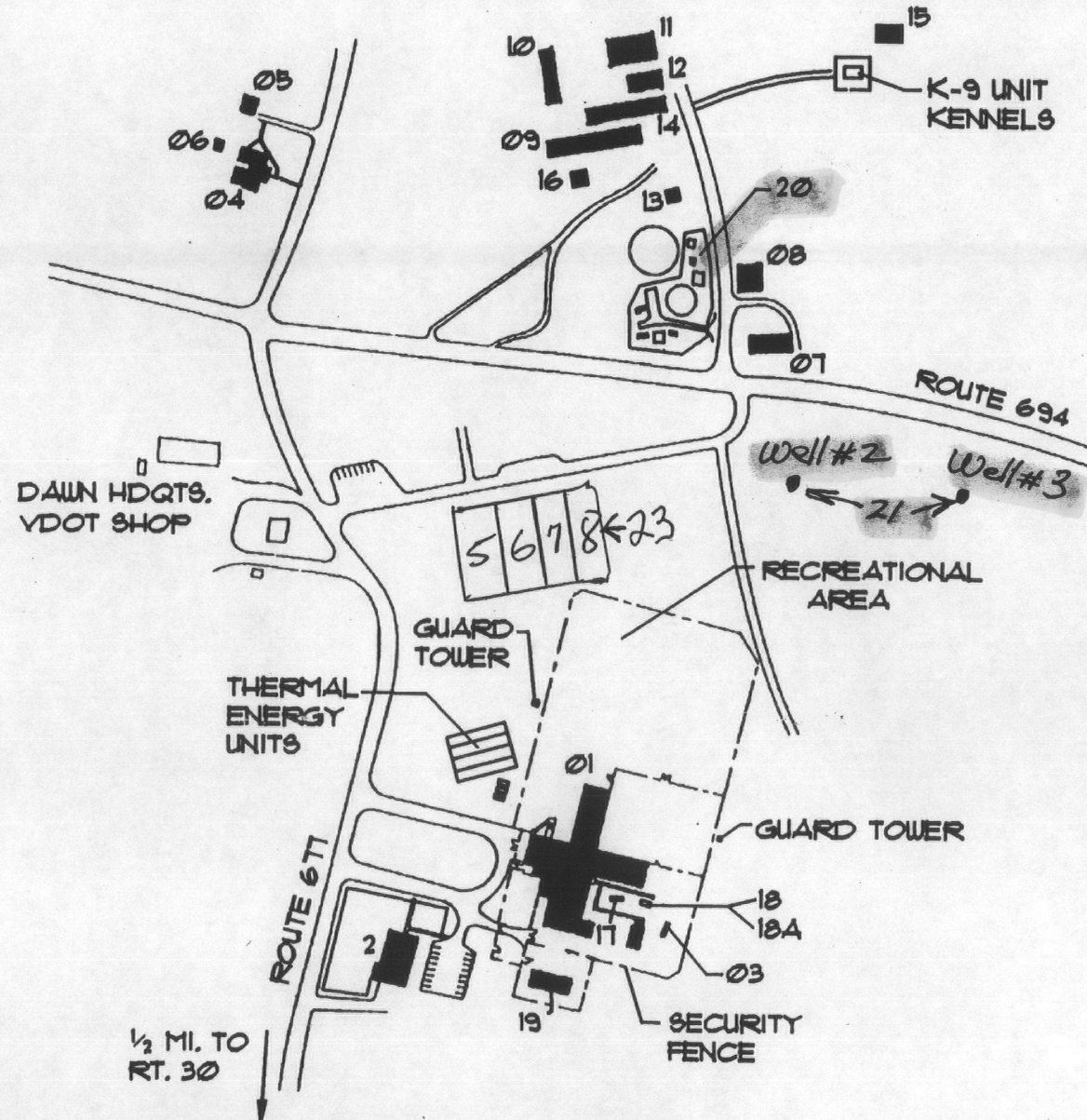




STATE MAP  
CAROLINE CO.



VICINITY MAP

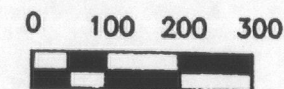


LEGEND

FAACS NO.	NAMES OF BUILDINGS
01	CELL BUILDING
02	ADMINISTRATION/BOQ
03	STORAGE BUILDING
04	RESIDENT DWELLING
05	CARPORT
06	TOOL SHED
07	CHICKEN HOUSE
08	BROODER HOUSE
09	CORN CRIB #1
10	CORN CRIB & MANCHINE SHED
11	EQUIPMENT HOUSE
12	STORAGE BUILDING
13	STORAGE BUILDING #3
14	POTATO HOUSE
15	STORAGE BUILDING #4
16	GREENHOUSE
17	PUMP HOUSE
18	WATER STORAGE TANKS
18A	STORAGE TANKS
19	MOBILE CLASSROOMS
20	SEWAGE TREATMENT PLANT
21	Wells # 2 + 3
22	Agribusiness Greenhouses
23	Agribusiness Greenhouses

TOTAL ACREAGE OF INSTITUTION: 142  
 DATE OF MAIN STRUCTURES: 1965  
 LENGTH OF PERIMETER SECURITY FENCING: 1,959 LF.  
 BUILDING CONSTRUCTION: REINF. CONCRETE STRUCTURE W/CONC. BLOCK WALLS  
 AND BRICK FACE

SITE PLAN



CAROLINE  
CORRECTIONAL  
UNIT #2

INST. CODE: T39  
 REGION II - NORTHERN

# VPDES Sewage Sludge Permit Application for Permit Reissuance

## Instructions

**WHO MUST SUBMIT THE APPLICATION** - All facilities with a current VPDES Permit that authorizes the discharge of treated sewage wastewater that are applying for reissuance must complete and submit this application.

Part 1 is general information to be provided by all facilities.

Part 2 must be completed by all facilities that generate Class A or Class B biosolids that are land applied.

Part 3 must be completed by all facilities that land apply Class B biosolids.

## Part 1 – Sludge Disposal Management (To be completed by all facilities)

**Facility Name:** Caroline Correctional Unit # 2

**VPDES Permit No:** VA0023329

### 1. Shipment Off Site for Treatment or Blending

Is sewage sludge from your facility sent to another facility that provides treatment or blending?

☐ Yes ☒ No

If you send sewage sludge to more than one facility, attach additional sheets as necessary.

Shipment off site is: ☒ The primary method of sludge disposal ☐ A back up method of sludge disposal

a. Receiving Facility Name Powhatan Correctional Center

b. Receiving Facility VPDES Permit No. VA0020699

c. Include an acceptance letter from the Receiving Facility.

d. Receiving Facility's ultimate disposal method for sewage sludge Land Applying to VADOC Farm Land

### 2. Disposal in a Municipal Solid Waste Landfill

Is sewage sludge from your facility placed in a municipal solid waste landfill?

☐ Yes ☒ No

If sewage sludge is placed on more than one municipal solid waste landfill, attach additional pages as necessary.

Landfilling is: ☐ The primary method of sludge disposal ☐ A back up method of sludge disposal

a. Landfill Name \_\_\_\_\_

b. Landfill Permit No. \_\_\_\_\_

c. Include an acceptance letter from the landfill.

### 3. Incineration

Is sewage sludge from your facility fired in a sewage sludge incinerator?

☐ Yes ☒ No

Incineration is: ☐ The primary method of sludge disposal ☐ A back up method of sludge disposal

a. Do you own or operate all sewage sludge incinerators in which sewage sludge from your facility is fired?

☐ Yes ☐ No

If yes, provide the Air Registration No. \_\_\_\_\_

If no, complete items b - d for each incinerator that you do not own or operate.

b. Facility Name \_\_\_\_\_

c. Air Registration No. \_\_\_\_\_

d. Include an acceptance letter from the Incinerator.

### 4. Class A Biosolids

Do you produce Class A biosolids for land application or distribution and marketing? If yes, complete Part 2.

☐ Yes ☒ No

Are Class A biosolids from your facility land applied in bulk?

☐ Yes ☐ No

Do you sell or give away Class A biosolids in a bag or other container for application to the land? If yes, provide the

☐ Yes ☐ No

VDACS certification number? \_\_\_\_\_

### 5. Class B Biosolids

Do you produce Class B biosolids? If yes, complete Part 2.

☒ Yes ☐ No

Are Class B biosolids from your facility land applied under the authorization of this VPDES Permit? If yes, complete Part 3.

☐ Yes ☒ No

### 6. Land Application Under a Separate Permit

Are biosolids from your facility land applied under the authorization of a permit other than your VPDES Permit?

☒ Yes ☐ No

Biosolids are land applied under the authorization of a ☐ VPA permit ☒ Another VPDES Permit ☐ Out of State

Complete items a - c for each VPA permit authorized to land apply biosolids from your facility.

a. Permittee Name

b. Permit No.

Powhatan Correctional Center

VA0020699

c. Include copy of any information you provide to the Receiving VPDES or VPA Permittee to comply with the "notice and necessary information" requirement of 9VAC25-31-530 F.

# VPDES Sewage Sludge Permit Application for Permit Reissuance

## Part 2 – Biosolids Characterization (To be completed by all facilities that generate biosolids that are land applied.)

1. Have there been changes to sludge treatment processes or storage facilities since the previous permit issuance/reissuance? ☐ Yes ☒ No
2. Do the biosolids generated under this permit that will be land applied meet one of the Class A pathogen requirements in 9VAC25-31-710 A 3 through A 8 or Class B pathogen requirements in 9VAC25-31-710 B 1 through B 4? ☒ Yes ☐ No  
Identify the pathogen reduction option utilized to demonstrate compliance with the pathogen reductions requirements and provide the data that demonstrate compliance with the applicable alternative. 7 Representative Samples > 2,000,000 MPN Per Gram of Total Solids
3. Do the biosolids generated under this permit that will be land applied meet one of the vector attraction reduction requirements in 9VAC25-31-720 B 1 through B 10? ☒ Yes ☐ No  
Identify the vector attraction reduction option utilized to demonstrate compliance with the vector attraction reductions requirements and provide the data that demonstrate compliance with the applicable alternative. Option 1, Minimum 38percent reduction in volatile solids
4. Do the biosolids to be land applied meet the ceiling/pollutant concentrations in 9VAC25-31-540 B? ☒ Yes ☐ No
5. Has data from the most recent 3 samples for pH (S.U.), Percent Solids (%), Ammonium Nitrogen (mg/kg), Nitrate Nitrogen (mg/kg), Total Kjeldahl Nitrogen (mg/kg), Total Phosphorus (mg/kg), Total Potassium (mg/kg), Alkalinity as CaCO<sub>3</sub> (mg/kg), Arsenic (mg/kg), Cadmium (mg/kg), Copper (mg/kg), Lead (mg/kg), Mercury (mg/kg), Nickel (mg/kg), Selenium (mg/kg), Zinc (mg/kg) been submitted to DEQ? The samples shall be no more than 4½ years old and each sampling date shall be at least 1 month apart. ☐ Yes ☒ No  
If no, provide the data with this application.


## Part 3 – Land Application of Class B Biosolids (To be completed by all facilities that land apply Class B biosolids.)

1. Provide to DEQ and to each locality in which biosolids are to be land applied, written evidence of financial responsibility. Evidence of financial responsibility shall be provided in accordance with 9VAC25-31-100 P 9.
2. For each site, provide a properly completed landowner agreement for each landowner, using the most current Land Application Agreement - Biosolids Form (VPDES Sewage Sludge Permit Application Form – Attachment to Section C).
3. Are any new land application fields proposed at this reissuance? ☐ Yes ☐ No  
If yes, contact the DEQ Regional Office for additional submittal requirements.
4. For the currently permitted land application fields, are the previously submitted site booklets, maps and acreage accurate. ☐ Yes ☐ No  
If no, contact the DEQ Regional Office for additional submittal requirements.
5. Does the facility's Biosolids Management Plan on file with DEQ include the following minimum information? ☐ Yes ☐ No
  - a. An odor control plan that addresses the abatement of odors resulting from the storage and/or land application of biosolids.
  - b. A description of the transport vehicles to be used.
  - c. Procedures for biosolids offloading at the land application site including spill prevention, cleanup (including vehicle cleaning), field reclamation, and emergency notification and cleanup measures.
  - d. A description of the land application equipment including procedures for calibrating equipment to ensure uniform distribution and appropriate loading rates.
  - e. Procedures used to ensure that land application activities address notification requirements, signage requirements, slope restrictions, operation limitations during periods of inclement weather, soil pH requirements, buffer zone requirements, and site restrictions.
  - f. Any other information necessary to ensure compliance with the requirements of the Biosolids Program of the VPDES Permit Regulation (9VAC25-31-420 through 720).

## Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Official Title Timothy G. Newton, Environmental Services Director

Signature 

Telephone number / Email (804) 887-8069

Timothy.Newton@vadoc.virginia.gov

Date signed 4/8/15

(Based on a review of this information, it may be necessary to submit additional information to meet other legal or technical review requirements.)

FACILITY NAME: Caroline

VA0023389  
VPDES PERMIT NUMBER:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title Tim Newton /ESU Director

Signature [Signature] Date Signed 11/29/07

Telephone number 804-674-3303 ext. 1195

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.



FACILITY NAME:

CarolineYes X NoVA0023329  
VPDES PERMIT NUMBER:

5. Sale or Give-Away in a Bag or Other Container for Application to the Land.  
(Complete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this question if sewage sludge is covered in Question 4.)

- a. Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility for sale or give-away for application to the land: n/a dry metric tons
- b. Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.

6. Shipment Off Site for Treatment or Blending.

(Complete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does not apply to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in Questions 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)

- a. Receiving facility name: Powhatan Correctional Center
- b. Facility contact: Randy Wilson  
Title: Environmental Services Unit Supervisor  
Phone: ( 804 ) 784-3551 Ext. 2299
- c. Mailing address:  
Street or P.O. Box: State Farm  
City or Town: State Farm State: VA Zip: 23160
- d. Total dry metric tons per 365-day period of sewage sludge provided to receiving facility: 3 dry metric tons
- e. List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:  
Permit Number: VA 0020699 Type of Permit: VPDES Permit

- f. Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility? X Yes    No  
Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?  
   Class A X Class B    Neither or unknown  
Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge: Add lime to stabilize and blend.

- g. Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the sewage sludge? X Yes    No

Which vector attraction reduction option is met for the sewage sludge at the receiving facility?

- Option 1 (Minimum 38 percent reduction in volatile solids)  
   Option 2 (Anacrobic process, with bench-scale demonstration)  
X Option 3 (Aerobic process, with bench-scale demonstration)  
   Option 4 (Specific oxygen uptake rate for aerobically digested sludge)  
   Option 5 (Aerobic processes plus raised temperature)  
X Option 6 (Raise pH to 12 and retain at 11.5)  
   Option 7 (75 percent solids with no unstabilized solids)  
   Option 8 (90 percent solids with unstabilized solids)  
   None unknown

Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce vector attraction properties of sewage sludge:

- h. Does the receiving facility provide any additional treatment or blending not identified in f or g above?  
   Yes X No

If yes, describe, on this form or another sheet of paper, the treatment processes not identified in f or g above:

FACILITY NAME:

Caroline

VA0023329  
VPDES PERMIT NUMBER:

- i. If you answered yes to f., g or h above, attach a copy of any information you provide to the receiving facility to comply with the "notice and necessary information" requirement of 9 VAC 25-31-530.G.
- j. Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give-away for application to the land? Yes X No  
If yes, provide a copy of all labels or notices that accompany the product being sold or given away.
- k. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? X Yes    No. If no, provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.  
Show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported.  
Sludge will be hauled mid day twice a year. Once in the fall and once in the spring.

7. Land Application of Bulk Sewage Sludge.  
(Complete Question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in Questions 4, 5 or 6; complete Question 7.b, c & d only if you are responsible for land application of sewage sludge.)
- a. Total dry metric tons per 365-day period of sewage sludge applied to all land application sites:        dry metric tons
- b. Do you identify all land application sites in Section C of this application?    Yes    No  
If no, submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).
- c. Are any land application sites located in States other than Virginia?    Yes    No  
If yes, describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification.
- d. Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV).

8. Surface Disposal.  
(Complete Question 8 if sewage sludge from your facility is placed on a surface disposal site.)
- a. Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites:        dry metric tons
- b. Do you own or operate all surface disposal sites to which you send sewage sludge for disposal?  
   Yes    No  
If no, answer questions c - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.
- c. Site name or number:
- d. Contact person:  
Title:  
Phone: (    )  
Contact is:    Site Owner    Site operator
- e. Mailing address:  
Street or P.O. Box:  
City or Town:        State:        Zip:
- f. Total dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal site:        dry metric tons
- g. List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the surface disposal site:  
Permit Number:         
Type of Permit:

FACILITY NAME:

Powhatan

SECTION C. LAND APPLICATION OF BULK SEWAGE SLUDGE

VA 0020679  
VPDES PERMIT NUMBER:

Complete this section for sewage sludge that is land applied unless any of the following conditions apply:  
The sewage sludge meets the Table 1 ceiling concentrations, the Table 3 pollutant concentrations, Class A pathogen requirements and one of the vector attraction reduction options 1-3 (fill out B.4 instead) (EQ Sludge); or  
The sewage sludge is sold or given away in a bag or other container for application to the land (fill out B.5 instead); or  
You provide the sewage sludge to another facility for treatment or blending (fill out B.6 instead).  
Complete Section C for every site on which the sewage sludge that you reported in B.7 is land applied.

1. Identification of Land Application Site.

a. Site name or number: See attachment

b. Site location (Complete i and ii)

i. Street or Route#: Off Rt. 6

County: Powhatan

City or Town: State Farm State: VA Zip: 23160

ii. Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

Method of latitude/longitude determination

\_\_\_\_\_ USGS map

\_\_\_\_\_ Filed survey

\_\_\_\_\_ Other

c. Topographic map. Provide a topographic map (or other appropriate map if a topographic map is unavailable) that shows the site location. See attachment

2. Owner Information.

a. Are you the owner of this land application site? ☒ Yes ☐ No

b. If no, provide the following information about the owner.

Name: \_\_\_\_\_

Street or P.O. Box: \_\_\_\_\_

City or Town: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

3. Applier Information:

a. Are you the person who applies, or who is responsible for application of, sewage sludge to this land application site? ☒ Yes ☐ No

b. If no, provide the following information for the person who applies the sewage sludge:

Name: \_\_\_\_\_

Street or P.O. Box: \_\_\_\_\_

City or Town: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

c. List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the person who applies sewage sludge to this land application site:

Permit Number: \_\_\_\_\_

Type of Permit: \_\_\_\_\_

4. Site Type. Identify the type of land application site from among the following:

☒ Agricultural land

☐ Reclamation site

☐ Forest

☐ Public contact site

☐ Other. Describe \_\_\_\_\_

5. Vector Attraction Reduction.

Are any vector attraction reduction requirements met when sewage sludge is applied to the land application site?  
☐ Yes ☒ No If yes, answer a and b.

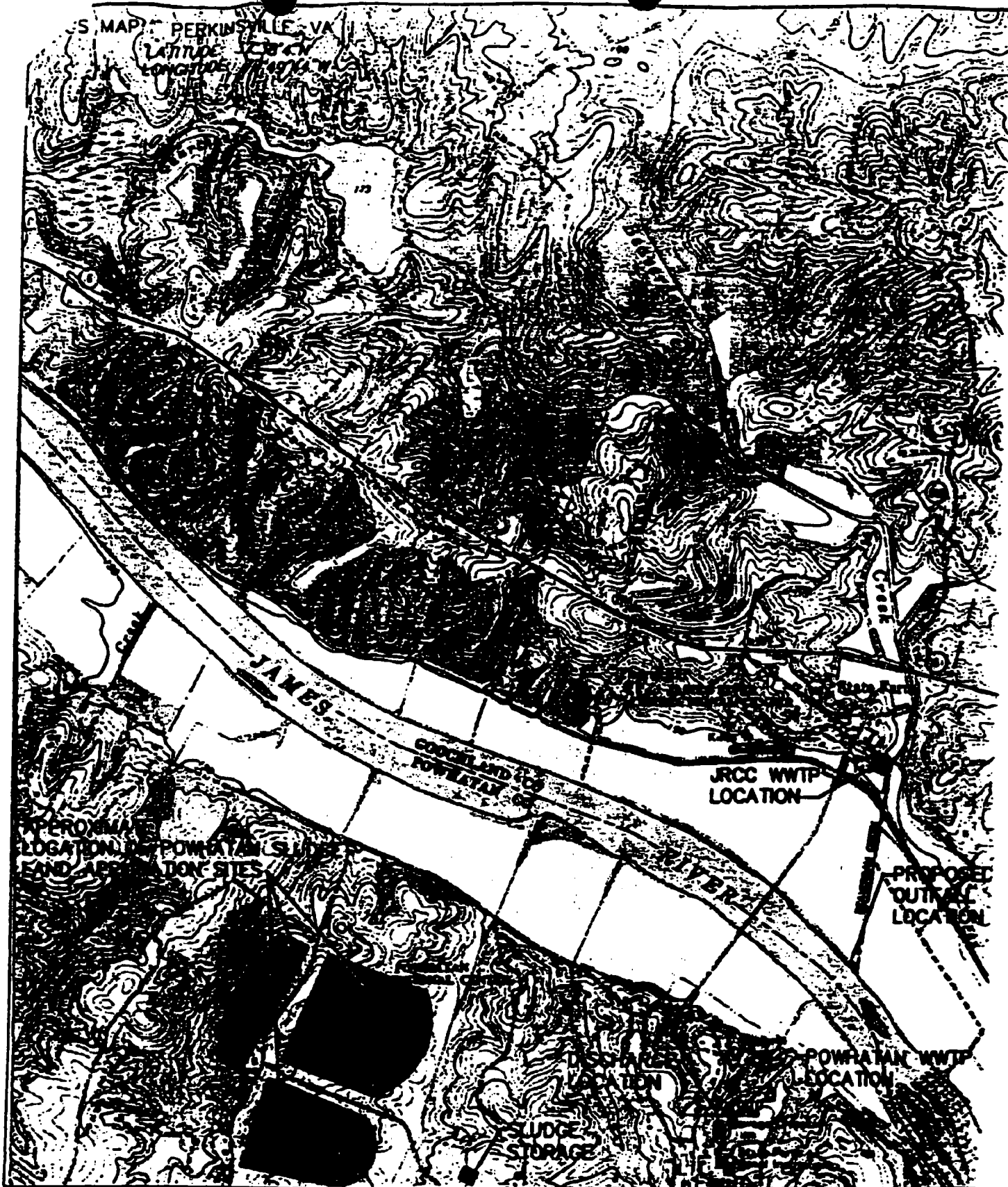
a. Indicate which vector attraction reduction option is met:

☐ Option 9 (Injection below land surface)

☐ Option 10 (Incorporation into soil within 6 hours)

b. Describe, on this form or on another sheet of paper, any treatment processes used at the land application site to reduce the vector attraction properties of sewage sludge:

B. TOPOGRAPHICAL MAP SHOWING ACREAGE  
OF EACH SITE TO BE LAND APPLIED



**TIMMONS**  
 • CIVIL ENGINEERS •  
 CORPORATE HEADQUARTERS  
 711 N. COURTHOUSE ROAD  
 NORFOLK, VIRGINIA 23510-4000  
 TELEPHONE: (804) 794-1300  
 FAX: (804) 794-7630

**JAMES RIVER CORRECTIONAL CENTER**  
 GOOCHLAND CO., VIRGINIA  
 VICINITY MAP

DATE: 2/5/02

SCALE: 1" = 2000'

DRAWN BY: D.T.N.

SHEET 1 OF 1



ATTACHMENT D

**A. TOPOGRAPHICAL MAP SHOWING AREAS TO BE LAND APPLIED**

All livestock will be removed prior to land application, and will not be allowed on land applied sites for thirty (30) days, sixty (60) days for dairy cattle.

**A. Buffer Zones**

The following buffer zones will be observed:

1. Sludge management operations will not be allowed within 750 feet of residential development or areas of public activity.
2. Sludge will not be applied within 200 feet of drinking water wells.
3. A 200 foot zone will be maintained from property lines.
4. 25 feet will be maintained from public roads.
5. 50 feet will be maintained from all weather streams.
6. 25 feet will be maintained from intermittent streams and ditches.
7. 50 feet will be maintained around wooded areas and rock outcrops.

**Application Sites Designated As:**

Site 1	97 acres✓	field 95
Site 2	30 acres✓	field 96
Site 3	82 acres✓	field 75
Site 4	73 acres✓	field 99
Site 5	35 acres	field 102
Site 6	31 acres	field 108
Site 7	Please omit; found to be wooded area	
Site 8	44 acres	field 67
Site 9	15 acres	field 716
Site 10	5 acres	field 68
Site 11	11 acres	field 64
Site 12	24 acres	field 69
Site 13	24 acres	field 60
Site 14	27 acres✓	field 52
Site 15	29 acres	field 90

Sludge will be land applied year round as needed. No sludge will be land applied during the rain, snow, or any other bad weather days. No sludge will be land applied immediately after wet weather.



**Spence, Steve O.**

**From:** Spence, Steve O.

**Sent:** Monday, August 25, 2008 8:58 AM

**To:** Kelly, Virginia (DEQ)

**Subject:** Lat. and Long. for Biosolids land application sites.

## Powhatan Land Application Sites

<b>Site # 1</b> N 37.82031 N 37° 37' 13.1"	<b>Lat.</b>	<b>Site #8</b> N 37.63989 N 37° 38' 22.9"	<b>Site # 14</b> N 37.62923 N 37° 37' 45.2"
W 77.84045	<b>Long.</b>	W 77.86034	W
77.83863		W 77° 51' 37.2"	W 77°
W 77° 50' 25.6"			
50° 19.1"			
<b>Site #2</b> N 37.62336 37.62126 N 37° 37' 24.1"		<b>Site #9</b> N 37.63904 N 37° 38' 20.5"	<b>Site #15</b> N N 37°
37° 16.5"		W 77.8731	W
W 77.84335		W 77° 52' 23.2"	W 77°
77.83487			
W 77° 50' 36.1"			
50° 5.5"			
<b>Site #3</b> N 37.62964 N 37° 37' 46.7"		<b>Site #10</b> N 37.64325 N 37° 38' 35.7"	
W 77.85414		W 77.86864	
W 77° 51' 14.9"		W 77° 52' 7.1"	
<b>Site #4</b> N 37.62752 N 37° 37' 39.1"		<b>Site #11</b> N 37.63785 N 37° 38' 16.3"	
W 77.85751		W 77.85546	
W 77° 51' 27"		W 77° 51' 19.7"	
<b>Site #5</b> -N 37.62386 N 37° 37' 25.9"		<b>Site # 12</b> N 37.64355 N 37° 38' 36.8"	

8/25/2008

**Spence, Steve O.**

From: Wilson, Randy A.

Sent: Friday, August 22, 2008 10:49 AM

To: Spence, Steve O.

Site #	N	Lat.	W	Long.
Site # 1	N 37.62031			
	N 37° 37' 13.1"			
			W 77.84045	
			77.83863	
			W 77° 50' 25.6"	
			50° 19.1"	
Site #2	N 37.62336			
	37.62126			
	N 37° 37' 24.1"			
	37° 16.5"			
			W 77.84335	
			77.83487	
			W 77° 50' 36.1"	
			50° 5.5"	
Site #3	N 37.62964			
	N 37° 37' 46.7"			
			W 77.85414	
			W 77° 51' 14.9"	
Site #4	N 37.62752			
	N 37° 37' 39.1"			
			W 77.85751	
			W 77° 51' 27"	
Site #5	N 37.62386			
	N 37° 37' 25.9"			
			W 77.86507	
			W 77° 51' 54.3"	
Site #6	N 37.62263			
	N 37° 37' 21.5"			
			W 77.85375	
			W 77° 51' 13.5"	
Site #8	N 37.63989			
	N 37° 38' 22.9"			
			W 77.86034	
			W 77° 51' 37.2"	
Site #9	N 37.63904			
	N 37° 38' 20.5"			
			W 77.8731	
			W 77° 52' 23.2"	
Site #10	N 37.64325			
	N 37° 38' 35.7"			
			W 77.86864	
			W 77° 52' 7.1"	
Site #11	N 37.63785			
	N 37° 38' 16.3"			
			W 77.85546	
			W 77° 51' 19.7"	
Site # 12	N 37.64355			
	N 37° 38' 36.8"			
			W 77.87069	
			W 77° 52' 14.5"	
Site # 13	N 37.63336			
	N 37° 38' 0.1"			
			W 77.85137	
			W 77° 51' 4.9"	
Site # 14	N 37.62923			
	N 37° 37' 45.2"			
			W	
			W 77°	
Site #15	N			
	N 37°			
			W	
			W 77°	

8/25/2008





1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

## Certificate of Analysis

*Final Report*

Laboratory Order ID 14L0381

Client Name: Caroline Correctional Unit  
31285 Camp Road  
Hanover, VA 23069

Date Received: December 18, 2014 14:43

Date Issued: December 30, 2014 11:15

Project Number: [none]

Purchase Order:

Submitted To: Lydell LeSane

Client Site I.D.: Biosolids Concentrations

Enclosed are the results of analyses for samples received by the laboratory on 12/18/2014 14:43. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

A handwritten signature in black ink that reads "Ted Soyars".

Ted Soyars  
Laboratory Manager

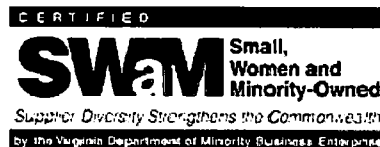
### End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Air Water & Soil Laboratories, Inc.





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## Certificate of Analysis

### *Final Report*

Laboratory Order ID 14L0381

Client Name:	Caroline Correctional Unit 31285 Camp Road Hanover VA, 23069	Date Received:	December 18, 2014 14:43
		Date Issued:	December 30, 2014 11:15
Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Biosolids Concentrations	14L0381-01	Soil	12/18/2014 11:40	12/18/2014 14:43

Results have been calculated based on dry weight.

Analysis for CaCO<sub>3</sub> was subcontracted to A&L Laboratory. The subcontracted results are attached at the end of this Certificate of Analysis.





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## Certificate of Analysis

### Final Report

Laboratory Order ID 14L0381

Client Name: Caroline Correctional Unit  
31285 Camp Road  
Hanover VA, 23069

Date Received: December 18, 2014 14:43  
Date Issued: December 30, 2014 11:15

Submitted To: Lydell LeSane  
Client Site I.D.: Biosolids Concentrations

Project Number: [none]  
Purchase Order:

#### Analytical Results

Sample I.D.     Biosolids Concentrations				Laboratory Sample ID:			14L0381-01		
Date/Time Sampled:     12/18/2014 11:40				Reporting	Sample Prep	Analysis			
Parameter	Samp ID	Method	Result	Qual	Limit	D.F.	Date/Time	Date/Time	Analyst
<b>Metals (Total) by EPA 6000/7000 Series Methods</b>									
Arsenic	01	SW6010C	<1.25 mg/kg dry		1.25	1	12/22/14 15:30	12/23/14 16:29	BG
Cadmium	01	SW6010C	2.28 mg/kg dry		0.250	1	12/22/14 15:30	12/23/14 16:29	BG
Copper	01	SW6010C	271 mg/kg dry		3.13	1	12/22/14 15:30	12/23/14 16:28	BG
Mercury	01	SW7471B	0.099 mg/kg dry		0.020	1	12/29/14 14:06	12/29/14 17:14	KEW
Potassium	01	SW6010C	1720 mg/kg dry		12.5	1	12/22/14 15:30	12/24/14 11:23	BG
Nickel	01	SW6010C	16.5 mg/kg dry		0.625	1	12/22/14 15:30	12/23/14 16:29	BG
Lead	01	SW6010C	33.2 mg/kg dry		0.625	1	12/22/14 15:30	12/23/14 16:29	BG
Selenium	01	SW6010C	9.65 mg/kg dry		3.13	1	12/22/14 15:30	12/23/14 16:29	BG
Zinc	01	SW6010C	766 mg/kg dry		0.625	1	12/22/14 15:30	12/23/14 16:28	BG
<b>Wet Chemistry Analysis</b>									
Ammonia as N	01RE1	EPA350.1 R2.0	755 mg/kg dry		61.5	5	12/24/14 16:29	12/24/14 16:29	RAC
Nitrate as N	01	Calc.	162 mg/kg			1	12/24/14 10:27	12/24/14 10:27	LBH
Nitrate+Nitrite as N	01	SM22 4500-NO3F-2011	162 mg/kg		98.2	1	12/22/14 16:26	12/22/14 16:26	LAO
Nitrite as N	01	SM22 4500-NO2B-2011	<2.00 mg/kg		2.00	1	12/24/14 10:27	12/24/14 10:27	LBH
Phosphorus, Total	01	SM22 4500PE-2011	1.70 mg/L		0.04	2	12/23/14 12:10	12/24/14 07:20	TLA
Percent Solids	01	SM18 2540G	79.0 %		0.1	1	12/24/14 12:35	12/24/14 12:35	KEW
pH	01	SW9045D	6.73 SU		0.00	1	12/23/14 15:26	12/23/14 15:28	LBH
TKN as N	01	EPA351.2 R2.0	2200 mg/kg dry		24.8	1	12/24/14 13:09	12/24/14 13:09	TLA



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Hanover VA, 23069

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Submitted To: Lydell LeSane  
Client Site I.D.: Biosolids Concentrations

Project Number: [none]  
Purchase Order:

### Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Subcontracted Analysis			Preparation Method:		
14L0381-01		MSAP2			

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep Halides		
14L0381-01	1.00 g / 1.00 mL	SM18 2540G	BXL0484	SXL0574	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep Wet Chem		
14L0381-01	0.0509 g / 5.00 mL	SM22 4500-NO3F-2011	BXL0450	SXL0527	AL40100
14L0381-01	25.0 mL / 25.0 mL	SM22 4500PE-2011	BXL0455	SXL0548	AL40034
14L0381-01	1.00 g / 1.00 mL	SW9045D	BXL0457	SXL0545	
14L0381-01	0.257 g / 25.0 mL	SM22 4500-NO2B-2011	BXL0462	SXL0606	AL40055
14L0381-01	0.255 g / 25.0 mL	EPA351.2 R2.0	BXL0487	SXL0579	AL40109
14L0381-01	0.0617 g / 6.00 mL	EPA350.1 R2.0	BXL0494	SXL0590	AL40110
14L0381-01RE1	0.0617 g / 6.00 mL	EPA350.1 R2.0	BXL0494	SXL0590	AL40110

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW3050B		
14L0381-01	1.01 g / 50.0 mL	SW6010C	BXL0444	SXL0557	AL40102
14L0381-01	1.01 g / 50.0 mL	SW6010C	BXL0444	SXL0578	AL40108

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7471B		
14L0381-01	0.257 g / 20.0 mL	SW7471B	BXL0525	SXL0636	AL40117



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## Certificate of Analysis

### Final Report

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Client Name:	Caroline Correctional Unit 31285 Camp Road Hanover VA, 23069	Date Received:	December 18, 2014 14:43
		Date Issued:	December 30, 2014 11:15
Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BXL0444 - SW3050B

##### Blank (BXL0444-BLK1)

Prepared: 12/22/2014 Analyzed: 12/23/2014

Selenium	<2.50 mg/kg wet	2.50	mg/kg wet
Lead	<0.500 mg/kg wet	0.500	mg/kg wet
Nickel	<0.500 mg/kg wet	0.500	mg/kg wet
Zinc	<0.500 mg/kg wet	0.500	mg/kg wet
Copper	<2.50 mg/kg wet	2.50	mg/kg wet
Arsenic	<1.00 mg/kg wet	1.00	mg/kg wet
Cadmium	<0.200 mg/kg wet	0.200	mg/kg wet

##### Blank (BXL0444-BLK2)

Prepared: 12/22/2014 Analyzed: 12/24/2014

Potassium	<10.0 mg/kg wet	10.0	mg/kg wet
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##### LCS (BXL0444-BS1)

Prepared: 12/22/2014 Analyzed: 12/23/2014

Copper	99.6 mg/kg wet	2.50	mg/kg wet	97.8	102	80-120
Selenium	91.7 mg/kg wet	2.50	mg/kg wet	97.8	93.9	80-120
Lead	97.2 mg/kg wet	0.500	mg/kg wet	97.8	99.5	80-120
Zinc	94.7 mg/kg wet	0.500	mg/kg wet	97.8	96.9	80-120
Arsenic	99.6 mg/kg wet	1.00	mg/kg wet	97.8	102	80-120
Cadmium	96.9 mg/kg wet	0.200	mg/kg wet	97.8	99.1	80-120
Nickel	100 mg/kg wet	0.500	mg/kg wet	97.8	102	80-120

##### LCS (BXL0444-BS2)

Prepared: 12/22/2014 Analyzed: 12/24/2014

Potassium	242 mg/kg wet	10.0	mg/kg wet	244	99.2	80-120
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##### LCS Dup (BXL0444-BSD1)

Prepared: 12/22/2014 Analyzed: 12/23/2014

Zinc	92.8 mg/kg wet	0.500	mg/kg wet	95.1	97.6	80-120	2.08	20
Cadmium	94.9 mg/kg wet	0.200	mg/kg wet	95.1	99.9	80-120	2.04	20
Arsenic	98.2 mg/kg wet	1.00	mg/kg wet	95.1	103	80-120	1.39	20
Lead	95.5 mg/kg wet	0.500	mg/kg wet	95.1	100	80-120	1.80	20
Nickel	98.0 mg/kg wet	0.500	mg/kg wet	95.1	103	80-120	2.11	20
Copper	97.8 mg/kg wet	2.50	mg/kg wet	95.1	103	80-120	1.82	20
Selenium	90.7 mg/kg wet	2.50	mg/kg wet	95.1	95.4	80-120	1.18	20





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Hanover VA, 23069

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Submitted To: Lydell LeSane  
Client Site I.D.: Biosolids Concentrations

Project Number: [none]  
Purchase Order:

### Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BXL0444 - SW3050B

##### LCS Dup (BXL0444-BSD2)

Prepared: 12/22/2014 Analyzed: 12/24/2014

Potassium	235 mg/kg wet	10.0	mg/kg wet	238	99.1	80-120	2.93	20		
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##### Matrix Spike (BXL0444-MS1)

Source: 14L0350-01

Prepared: 12/22/2014 Analyzed: 12/23/2014

Nickel	115 mg/kg wet	0.500	mg/kg wet	92.1	45.8 mg/kg wet	75.4	75-125			
Lead	329 mg/kg wet	0.500	mg/kg wet	92.1	479 mg/kg wet	-163	75-125			M
Copper	481 mg/kg wet	2.50	mg/kg wet	92.1	565 mg/kg wet	-91.4	75-125			M
Zinc	369 mg/kg wet	0.500	mg/kg wet	92.1	477 mg/kg wet	-117	75-125			M
Cadmium	71.5 mg/kg wet	0.200	mg/kg wet	92.1	8.27 mg/kg wet	68.7	75-125			M
Arsenic	75.7 mg/kg wet	1.00	mg/kg wet	92.1	34.9 mg/kg wet	44.3	75-125			M
Selenium	73.7 mg/kg wet	2.50	mg/kg wet	92.1	<2.50 mg/kg wet	80.1	75-125			

##### Matrix Spike (BXL0444-MS2)

Source: 14L0350-01

Prepared: 12/22/2014 Analyzed: 12/24/2014

Potassium	3030 mg/kg wet	10.0	mg/kg wet	230	2860 mg/kg wet	74.5	75-125			M
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##### Matrix Spike Dup (BXL0444-MSD1)

Source: 14L0350-01

Prepared: 12/22/2014 Analyzed: 12/23/2014

Lead	320 mg/kg wet	0.500	mg/kg wet	91.3	479 mg/kg wet	-174	75-125	2.75	20	M
Nickel	112 mg/kg wet	0.500	mg/kg wet	91.3	45.8 mg/kg wet	72.8	75-125	2.57	20	M
Cadmium	70.9 mg/kg wet	0.200	mg/kg wet	91.3	8.27 mg/kg wet	68.6	75-125	0.833	20	M
Copper	481 mg/kg wet	2.50	mg/kg wet	91.3	565 mg/kg wet	-92.4	75-125	0.0483	20	M
Arsenic	74.4 mg/kg wet	1.00	mg/kg wet	91.3	34.9 mg/kg wet	43.3	75-125	1.63	20	M
Selenium	71.9 mg/kg wet	2.50	mg/kg wet	91.3	<2.50 mg/kg wet	78.7	75-125	2.49	20	
Zinc	371 mg/kg wet	0.500	mg/kg wet	91.3	477 mg/kg wet	-116	75-125	0.576	20	M

##### Matrix Spike Dup (BXL0444-MSD2)

Source: 14L0350-01

Prepared: 12/22/2014 Analyzed: 12/24/2014

Potassium	3040 mg/kg wet	10.0	mg/kg wet	228	2860 mg/kg wet	76.7	75-125	0.121	20	
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#### Batch BXL0525 - SW7471B

##### Blank (BXL0525-BLK1)

Prepared & Analyzed: 12/29/2014

Mercury	<0.008 mg/kg wet	0.008	mg/kg wet							
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## Certificate of Analysis

### Final Report

Laboratory Order ID 14L0381

Client Name:	Caroline Correctional Unit 31285 Camp Road Hanover VA, 23069	Date Received:	December 18, 2014 14:43
		Date Issued:	December 30, 2014 11:15
Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BXL0525 - SW7471B

##### LCS (BXL0525-BS1)

Prepared & Analyzed: 12/29/2014

Mercury	0.087 mg/kg wet	0.008	mg/kg wet	0.0958		90.7	80-120			
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##### LCS Dup (BXL0525-BSD1)

Prepared & Analyzed: 12/29/2014

Mercury	0.091 mg/kg wet	0.008	mg/kg wet	0.0977		93.0	80-120	4.41	20	
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##### Matrix Spike (BXL0525-MS1)

Source: 14L0295-01

Prepared & Analyzed: 12/29/2014

Mercury	0.090 mg/kg wet	0.008	mg/kg wet	0.0906	0.011 mg/kg wet	87.2	80-120			
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##### Matrix Spike (BXL0525-MS2)

Source: 14L0295-05

Prepared & Analyzed: 12/29/2014

Mercury	0.094 mg/kg wet	0.008	mg/kg wet	0.0876	0.021 mg/kg wet	83.2	80-120			
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##### Matrix Spike Dup (BXL0525-MSD1)

Source: 14L0295-01

Prepared & Analyzed: 12/29/2014

Mercury	0.083 mg/kg wet	0.008	mg/kg wet	0.0838	0.011 mg/kg wet	85.3	80-120	8.75	20	
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##### Matrix Spike Dup (BXL0525-MSD2)

Source: 14L0295-05

Prepared & Analyzed: 12/29/2014

Mercury	0.096 mg/kg wet	0.008	mg/kg wet	0.0916	0.021 mg/kg wet	82.6	80-120	2.91	20	
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### Final Report

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Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### Wet Chemistry Analysis - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BXL0450 - No Prep Wet Chem

<b>Blank (BXL0450-BLK1)</b>				Prepared & Analyzed: 12/22/2014						
Nitrate+Nitrite as N	<10.0 mg/kg	10.0	mg/kg							
<b>LCS (BXL0450-BS1)</b>				Prepared & Analyzed: 12/22/2014						
Nitrate+Nitrite as N	<10 mg/L	10	mg/L	2.50		93.4	80-120			
<b>LCS Dup (BXL0450-BSD1)</b>				Prepared & Analyzed: 12/22/2014						
Nitrate+Nitrite as N	<10 mg/L	10	mg/L	2.50		91.8	80-120	1.69	20	
<b>Matrix Spike (BXL0450-MS1)</b>				Source: 14L0312-01		Prepared & Analyzed: 12/22/2014				
Nitrate+Nitrite as N	226 mg/kg	96.0	mg/kg	240	<96.0 mg/kg	94.0	75-125			
<b>Matrix Spike Dup (BXL0450-MSD1)</b>				Source: 14L0312-01		Prepared & Analyzed: 12/22/2014				
Nitrate+Nitrite as N	226 mg/kg	96.0	mg/kg	240	<96.0 mg/kg	94.2	75-125	0.128	20	

#### Batch BXL0455 - No Prep Wet Chem

<b>Blank (BXL0455-BLK1)</b>				Prepared & Analyzed: 12/23/2014						
Phosphorus, Total	<0.02 mg/L	0.02	mg/L							
<b>LCS (BXL0455-BS1)</b>				Prepared & Analyzed: 12/23/2014						
Phosphorus, Total	0.48 mg/L	0.02	mg/L	0.500		95.5	80-120			
<b>LCS Dup (BXL0455-BSD1)</b>				Prepared & Analyzed: 12/23/2014						
Phosphorus, Total	0.48 mg/L	0.02	mg/L	0.500		96.9	80-120	1.46	20	
<b>Matrix Spike (BXL0455-MS1)</b>				Source: 14L0340-01		Prepared & Analyzed: 12/23/2014				
Phosphorus, Total	0.62 mg/L	0.02	mg/L	0.500	0.10 mg/L	104	70-130			





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Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### Wet Chemistry Analysis - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BXL0455 - No Prep Wet Chem

##### Matrix Spike Dup (BXL0455-MSD1)

Source: 14L0340-01

Prepared & Analyzed: 12/23/2014

Phosphorus, Total	0.63 mg/L	0.02	mg/L	0.500	0.10 mg/L	106	70-130	1.45	20	
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#### Batch BXL0457 - No Prep Wet Chem

##### LCS (BXL0457-BS1)

Prepared & Analyzed: 12/23/2014

pH	4.96 SU	0	SU	5.00		99.2	94-106			
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##### Duplicate (BXL0457-DUP1)

Source: 14L0355-01

Prepared & Analyzed: 12/23/2014

pH	3.81 SU	0.00	SU	3.87 SU				1.56	20	
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#### Batch BXL0462 - No Prep Wet Chem

##### Blank (BXL0462-BLK1)

Prepared & Analyzed: 12/24/2014

Nitrite as N	<2.00 mg/kg	2.00	mg/kg							
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##### LCS (BXL0462-BS1)

Prepared & Analyzed: 12/24/2014

Nitrite as N	11.0 mg/kg	2.00	mg/kg	10.0		110	80-120			
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##### LCS Dup (BXL0462-BSD1)

Prepared & Analyzed: 12/24/2014

Nitrite as N	10.8 mg/kg	2.00	mg/kg	10.0		108	80-120	1.83	20	
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##### Matrix Spike (BXL0462-MS1)

Source: 14L0381-01

Prepared & Analyzed: 12/24/2014

Nitrite as N	9.14 mg/kg	2.00	mg/kg	9.72	<2.00 mg/kg	94.0	75-125			
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##### Matrix Spike Dup (BXL0462-MSD1)

Source: 14L0381-01

Prepared & Analyzed: 12/24/2014

Nitrite as N	9.23 mg/kg	2.00	mg/kg	9.72	<2.00 mg/kg	95.0	75-125	1.06	20	
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Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### Wet Chemistry Analysis - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BXL0484 - No Prep Halides

##### Blank (BXL0484-BLK1)

Prepared & Analyzed: 12/24/2014

Percent Solids	100 %	0.1	%
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##### Duplicate (BXL0484-DUP1)

Source: 14L0390-01

Prepared & Analyzed: 12/24/2014

Percent Solids	91.8 %	0.1	%	90.3 %	1.66	20
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#### Batch BXL0487 - No Prep Wet Chem

##### Blank (BXL0487-BLK1)

Prepared & Analyzed: 12/24/2014

TKN as N	<20.0 mg/kg wet	20.0	mg/kg wet
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##### LCS (BXL0487-BS1)

Prepared & Analyzed: 12/24/2014

TKN as N	1040 mg/kg wet	20.0	mg/kg wet	1000	104	80-120
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##### LCS Dup (BXL0487-BSD1)

Prepared & Analyzed: 12/24/2014

TKN as N	1040 mg/kg wet	20.0	mg/kg wet	1000	104	80-120	0.0770	20
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##### Matrix Spike (BXL0487-MS1)

Source: 14L0312-01

Prepared & Analyzed: 12/24/2014

TKN as N	1190 mg/kg wet	20.0	mg/kg wet	960	423 mg/kg wet	79.7	75-125
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##### Matrix Spike Dup (BXL0487-MSD1)

Source: 14L0312-01

Prepared & Analyzed: 12/24/2014

TKN as N	1240 mg/kg wet	20.0	mg/kg wet	960	423 mg/kg wet	85.0	75-125	4.16	20
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#### Batch BXL0494 - No Prep Wet Chem

##### Blank (BXL0494-BLK1)

Prepared & Analyzed: 12/24/2014

Ammonia as N	<10.0 mg/kg wet	10.0	mg/kg wet
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## Certificate of Analysis

### Final Report

Laboratory Order ID 14L0381

Client Name:	Caroline Correctional Unit 31285 Camp Road Hanover VA, 23069	Date Received:	December 18, 2014 14:43
		Date Issued:	December 30, 2014 11:15
Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### Wet Chemistry Analysis - Quality Control

#### Air Water & Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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#### Batch BXL0494 - No Prep Wet Chem

##### LCS (BXL0494-BS1)

Prepared & Analyzed: 12/24/2014

Ammonia as N	<10 mg/L	10	mg/L	2.00	102	80-120
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##### LCS Dup (BXL0494-BSD1)

Prepared & Analyzed: 12/24/2014

Ammonia as N	<10 mg/L	10	mg/L	2.00	99.0	80-120	2.54	20
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##### Matrix Spike (BXL0494-MS1)

Source: 14L0381-01RE1 Prepared & Analyzed: 12/24/2014

Ammonia as N	1060 mg/kg dry	61.5	mg/kg dry	246	755 mg/kg dry	124	75-125
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##### Matrix Spike Dup (BXL0494-MSD1)

Source: 14L0381-01RE1 Prepared & Analyzed: 12/24/2014

Ammonia as N	1070 mg/kg dry	61.5	mg/kg dry	246	755 mg/kg dry	130	75-125	1.38	20	M
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## Certificate of Analysis

### Final Report

Laboratory Order ID 14L0381

Client Name:	Caroline Correctional Unit 31285 Camp Road Hanover VA, 23069	Date Received:	December 18, 2014 14:43
		Date Issued:	December 30, 2014 11:15
Submitted To:	Lydell LeSane	Project Number:	[none]
Client Site I.D.:	Biosolids Concentrations	Purchase Order:	

### Certified Analyses included in this Report

Analyte	Certifications
<b>EPA350.1 R2.0 in Solids</b>	
Ammonia as N	VELAP
<b>EPA351.2 R2.0 in Solids</b>	
TKN as N	VELAP
<b>SM22 4500-NO3F-2011 in Solids</b>	
Nitrate+Nitrite as N	VELAP
<b>SM22 4500PE-2011 in Non-Potable Water</b>	
Phosphorus, Total	VELAP,NC
<b>SW6010C in Solids</b>	
Arsenic	VELAP,NC
Cadmium	VELAP,NC,WVDEP
Copper	VELAP,NC
Lead	VELAP,NC,WVDEP
Nickel	VELAP,NC
Potassium	VELAP
Selenium	VELAP,NC,WVDEP
Zinc	VELAP,NC
<b>SW7471B in Solids</b>	
Mercury	VELAP,WVDEP
<b>SW9045D in Solids</b>	
pH	VELAP

Code	Description	Lab Number	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2014
NC	North Carolina DENR	495	12/31/2014
VELAP	NELAC-Virginia Certificate #7610	460021	06/14/2015